RIVERS AND HISTORY:

BRAHMAPUTRA VALLEY IN THE LAST TWO CENTURIES

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ABBREVIATIONS

AC	Assam Commissioner's Papers
AR	Asiatic Researches
ASA	Assam State Archives
BG	Bengal Government Papers
BR	Bengal Revenue Papers
DHAS	Department of Historical And Antiquarian Studies
G	Papers Relating to Goalpara
GOI	Government of India
JASB	Journal of the Asiatic Society of Bengal
NAI	National Archives of India
NEF	North East Frontier
PWD	Public Works Department
RGSL	Royal Geographical Society of London

GLOSSARY

Adhi: A form of subletting in which the crop after being harvested is divided equally between the subtenant and the land holder

Ahu: Early broadcast rice

Alutiya: Clayey

Balichehiya: Sandy

Bam: High-lying

Bao: Late broadcast rice

Basti / Bari: Land occupied by a house and the surrounding garden

Chapori: Riverine land which is annually submerged; also immune high land covered with grass jungle

Chechukia: Shaded

Chutki-adhi: A form of subletting by which the subtenant is obliged to pay a fixed quantity of paddy, whatever may be the outturn of the field

Da: Low-lying

Dhan: Unhuskd rice, paddy

Don: A measure containing 3½ seers of grain

Faringati: All settled land not included under basti or rupit

Jalatak: Subject to inundation

Khiraj: Land settled for ordinary cultivation and paying full rates of revenue

Nisf-khiraj: land granted at half the usual rates of revenue

Pura: Four bighas of land; 3 dons of grain

Rupit: Land on which transplanted rice is grown

Sali / Salee: Late transplanted rice

Takala: Bare

AN INTRODUCTION

RIVERS AND HISTORY

> *Man alone has succeeded in impressing his stamp on nature, not only by shifting plant and animal species from one place to another, but also by so altering the aspect and climate of his dwelling place, and even the plants and animals themselves… [I]t is precisely the alteration of nature by men, not solely nature as such, which is the most essential and immediate basis of human thought, and it is in the measure that man has learned to change nature that his intelligence has increased*.[1]

The conceptions and worldviews that have historically informed our understanding of the relation between society and its natural environment have broadly conformed to one or the other of – to use Engel's terms – the "two great camps".[2] On two sides of this epistemological divide were idealism and materialism. Materialism holds the primacy of matter over mind, while the opposite is true for idealism. The materialist theory of knowledge holds that a Nature and its elements exist outside and independent of human consciousness, and operates according to its own laws. Moreover, the society knows or makes

[1] Frederic Engels, *Dialectics of Nature*, Moscow: Progress Publishers, 1976.

[2] ""Did God create the world or has the world been in existence eternally?" The answers which the philosophers gave to this question split them into two great camps. Those who asserted the primacy of spirit to nature and, therefore, in the last instance, assumed world creation in some form or other...comprised the camp of idealism. The others, who regarded the nature as primary, belong to the various schools of materialism." Frederick Engels, *Ludwig Feurbach and the Outcome of Classical German Philosophy*, New York: International Publishers, 1941, pp.17-21.

sense of a phenomenon in the process of its productive activities i.e., while working upon Nature. Though the knowledge of Nature and the laws of its operation are acquired by working upon it through human labour, the same process also entails a simultaneous process of alienation of human beings from Nature.[3] The idealist system of knowledge, on the other hand, renders Nature with metaphysical charms. One of the fundamental principles of Idealism is that human consciousness determines the ways of perceiving matter, which does not exist independent of the human mind. As such, societies at different epochs make sense of the same phenomenon differently. Both idealism and materialism has several variants and longstanding historical tradition, but idealism as a distinct philosophical tend has consistently been challenged by materialism, and has upheld a world outlook that encouraged the development of scientific thinking in our understanding of Nature. The ascendance of a materialist world outlook was a crucial ideological base in the deepening of studying nature and the development of various branches of natural sciences in the last few centuries, which also challenged and weakened the influence of the metaphysical content of organised religions.

The materialist conception of history, one of the fundamentals of Marxism, has influenced the way historians have investigated the society-nature relationship in the twentieth century. As opposed to mechanical and evolutionary materialism, Marx and Engels established the superiority of dialectical materialism, turning Hegel's path-breaking insights mired in dialectical idealism on its head. Marxism with its consistent application of dialectic materialism in thought and action has emerged in the last hundred years as not only a potent tool of social and historical analysis but as a guide to conscious social transformation. At a time when the assertions of 'Death of Marxism' and 'End of History' declared just after the breaking up of the Soviet Union have lost all their

[3] "Epicurus, according to Marx, had discovered alienation from nature; but Hegel revealed the alienation of human beings from their own labor, and hence from both from society and the specifically human relation to nature. Marx forged these insights…into a revolutionary philosophy that aimed at nothing less than the transcendence of alienation in all of its aspects: the world of rational ecology and human freedom with an earthly basis – the society of associated producers." John Bellamy Foster, *Marx's Ecology: Materialism and Nature*, New York: Monthly Review Press, 2000, p.256.

novelty, when 'post-modern' and 'post-colonial' critiques have exposed themselves in the last twenty years as nothing but the latest avatars of the stale idealism of yesteryears, when scholars peddling revisionism in the garb of Marxism have justifiably come under severe questioning and criticism, when imperialist and neo-colonial forms of domination threatens all spheres of freedom including that of intellectual life of nations and people around the world, and when celebrated movements like the Save the Narmada Movement and Chipko – presented to us as models of people's struggles – have been decisively defeated by the Indian state, a turn or return to Marxism for the people including those in the academic world appears more relevant than ever. This is also because a just and non-exploitative relation with nature cannot be forged as long as exploitative social relations exist among classes, nations, and the people.

Society and the Physical Environment: The Annales Historians

Still waters run deep and we should not be misled by surface flurries.

- Fernand Braudel[4]

Can there be a history of mountains, seas, rivers, forests, climates? There can be and there have been such histories, especially of climate, forests, species, etc. Much of it has been their natural history. Can there be a history of a river other than its natural history? Can a social history of a river be attempted? The history of a river in a social enquiry cannot but be a study of the people's relations with the river, and by extension, the relations within the society. But the category of 'people' in the ordinary sense is an indeterminate one. Can there be only one kind of relation of a society with the river? In a class-divided society there are class-based differences of world-outlook, and thereby different ways of interacting with the river. The understanding of Nature can differ within a society divided by class contradictions, which is to say that different social classes sharing the same temporal and spatial plane can have different and even

[4] Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Phillip II*, Vol. II, Berkley and Los Angeles: University of California Press, 1995 (1949) p.1242.

conflicting outlooks towards Nature. Since the dominant class with control over political power tries to impose its world-outlook on the entire society, it also defines the dominant mode of the society's relation with nature. So, we find distinct ways of perceiving and making use of a river in the pre-capitalist Europe from that of post-Industrial Revolution. Similarly, ways of perceiving the river in late-nineteenth century India is different from that of late-twentieth century. Capitalism and socialism as two distinct social orders differ in their relation to nature. A river could be differently represented in a tribal oral culture than in a Sanskrit text or a *buranji*. Or for that matter, the classes engaged in physical labour under exploitative production relations may perceive a forest or a hill in a radically different manner than those classes that enjoyed the fruits of their labour.

People's relation with nature or their lived environment as distinct from the study of nature *per se* – which is the subject matter of natural sciences – has been a subject of examination for historians and social scientists for quite some time. In France in particular, there has been a long tradition of historians looking into the connections between history and geography – between the productive activities of the society and the natural environment in which it was set. Beginning in the 1920s, the historians came to be closely associated with the *Annales* magazine inaugurated a study of this relationship in *longue durée*, or in the long duration, as opposed to *l'histoire événementielle*, or "the history of events: the surface disturbance, the waves stirred up by the powerful movement of tides."[5] Lucien Febvre was one of the forerunners of this branch of historiography which has left a rich historical tradition. To his contemporaries, "The scientific spirit which animates him is up in arms against the pseudo-science which deals in theories of excessive simplicity and impoverishes the living reality...what he has aimed at especially is to show just *how* the played in History by the geographer's "Earth" can be determined."[6] As Febvre has put the "Problem of Environment" in his influential *A Geographical Introduction to History* published in early 1920s,

[5] Fernand Braudel, 'Preface' *The Mediterranean and the Mediterranean World* , Vol. I, p.3.
[6] Henry Berr, 'Foreword' to Lucien Febvre's *A Geographical Introduction to History*, tr. E. G. Mountford and J. H. Paxton, London: Routledge & Kegan Paul, 1950 (1925), p.vi.

> We are proposing to consider...the vast question of the relation of the land to human societies and of human societies to the land. We propose to increase our difficulties by transposing the problem into terms of time, and by asking ourselves what conditions are imposed on history – imposed in advance – by the habitable earth.[7]

He noted that the enquiry into the effects of the elements of nature on human society has a long precedence in the western world, dating back as far as to the works of *On Airs, Waters and Places* by Hippocrates, the "ancestor or rather the patriarch" of such studies. He was followed by the ancients, including Plato and Ptolemy, Latin thinkers like Lucretius, and then Bodin, Abbé Dubos, Montesquieu, Buffon, Humboldt, Ratzel and other 'moderns'. But the shortcoming of this was the formulation of the ""Problem" in terms of "the relations between environment and human society in its *historic evolution*."[8]

Following the new ground broken by the likes of Febvre and Marc Bloch in charting out a new branch of historiography – "geographical history" or "historical geography" – pioneering investigations were carried out by a new generation of France historians in the post-Second World War period. Among these the more notable contributors have been Fernand Braudel and Emmanuel Le Roy Ladurie. Braudel's *The Mediterranean and the Mediterranean World in the Age of Phillip II* has been particularly influential. This book represented "an attempt to write a new kind of history, *total history*, written on three different registers, on three different levels, perhaps best described as three different conceptions of time."[9] He "sought out, within the framework of a geographical study, those local, permanent, unchanging and much repeated features which are the 'constants' of Mediterranean history."[10]

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[7] Lucien Febvre, *A Geographical Introduction to History*, tr. E. G. Mountford and J. H. Paxton, London: Routledge & Kegan Paul, 1950 (1925), p.1.
[8] Febvre, *A Geographical Introduction to History*, p.85.
[9] Braudel, Fernand, *The Mediterranean and the Mediterranean World in the Age of Phillip II*, Vol. II, Berkley and Los Angeles: University of California Press, 1995 (1949), up.1238.
[10] Ibid. p.1239.

Notwithstanding its great achievements in establishing through demonstration that the physical environment has a bearing on human history, the limitation of *Annales* school was closer to what Engels termed as the 'naturalistic conception of history' which held that "nature exclusively reacts on man, and natural conditions everywhere exclusively determined his historical development", and therefore is bound to be "one-sided and forgets that man also reacts on nature, changing it and creating new conditions of existence for himself."[11] Such a history comes forth as evolutionary, one-dimensional, unidirectional and deterministic. Though the *Annales* historians forcefully established the environmental factors in shaping history and thereby pointing out the biases of anthropocentricism in earlier historiography, by choosing to prioiritise one over the other, they unwittingly reproduced the one-sidedness of the histories they rightly critiqued. The point is to pose the question dialectically, i.e., the way a human society and the physical environment constantly works upon and shape each other over time in a two-way process.

Social Movements and the Emergence of 'Environmental History'

It is generally accepted that the emergence of 'environmental history' as a separate sub-branch of history in North America has its origins in the social movements of that time which highlighted the adverse impact of technology-driven industry on the animate and inanimate world. Rachel Carson's *Silent Spring* published in 1962 – which subsequently ran for more than thirty reprints – is widely perceived to be a path-breaking work in highlighting the adverse impact of the use of technology on the society and ecology. So influential was her book and the movement that generated it that "Her book...is often seen as marking the birth of the modern environmental movement."[12] She was highly critical of the use of harmful chemical pesticides and insecticides in agriculture,

[11] Frederic Engels, *Dialectics of Nature*, Moscow: Progress Publishers, 1976, p. 231.

[12] John Bellamy Foster, *The Ecological Revolution: Making Peace with the Planet*, Kharagpur: Cornerstone Publications, 2009, p.67. Foster further notes, referring to the ideological basis of Carson's critique of the pesticide industry, "Although an immense amount has been written about Carson and her work, the fact that she was objectively a "woman of the left" has often been downplayed. Today, the rapidly accelerating planetary ecological crisis, which she more than anyone else alerted to us, calls for an exploration of the full critical nature of her thought and its relation to the larger revolt within science with which she was associated." ibid., P.67.

which were by-products of the Second World War research in developing agents for chemical warfare. She wrote,

> For the first time in the history of the world, every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death. In the less than two decades of their use the synthetic pesticides have been so thoroughly distributed throughout the animate and inanimate world that they occur virtually everywhere. They have been recovered from most of the major river systems and even from streams of groundwater flowing unseen through the earth. Residues of these chemicals linger is soil to which they may have been applied a dozen years before. They have entered and lodged in the bodies of fish, birds, reptiles, and domestic and wild animals so universally that scientists carrying on animal experiments find it almost impossible to locate subjects free from such contamination. They have been found in fish in remote mountain lakes, in earthworms burrowing in soil, in the eggs of birds – and in man himself. For these chemicals are now stored in the bodies of the vast majority of human beings, regardless of age. They occur in the mother's milk, and probably in the tissues of the unborn child.[13]

When she called upon the American people to demand an end to the spread of these poisonous chemicals "in an era dominated by industry, in which the right to make a dollar at whatever cost is seldom challenged", this indeed was a challenge to the powerful chemical and fertilizers industry in the USA which had strong clouts in the government. In spite of the strong opposition put up by multinational corporations that manufactured Dichlorodiphenyltrichloroethane (DDT) – one of the most important synthetic agents – the campaign triggered by *Silent Spring* managed to force the phasing out of its use in 1970s, along with some other deadly chemicals. Donald Worster argued, "We have had to confront the fact that when we in the United States manufacture a pesticide like DDT and sell it around the world, it can eventually turn up in the bodies of penguins living innocently at the South Pole. We may not want to accept responsibility for those outcomes – and most of us do not – but we cannot be unaware of them."[14]

[13] Rachel Carson, *Silent Spring*, Goa: Other India Press, 2003 (1962), p.12.
[14] Donald Worster, ed., *The Ends of the Earth: Perspectives on Modern Environmental History*, Cambridge: Cambridge University Press, 1988.

However, except the banning of some of the most harmful toxins, the chemical industry won the battle, and there was a rapid expansion of the kind of products Carson fought. In fact, by late 1980s, the production of pesticides had grown more than twice in comparison to early 1960s when *Silent Spring* was first published.[15] It is also necessary to remember what John Bellamy Foster tells us of Rachel Carson in order to fully appreciate the vision she envisaged. He writes,

> Carson's attack on synthetic pesticides is not her most notable achievement. Rather it is her wider, ecological critique, challenging the whole nature of our society which is so important today. Carson is better understood if we recognise that she was not simply an isolated figure as is often supposed, but was a part of a larger revolt among scientists and left thinkers in the 1950s and 1960s arising initially from concerns over the effects of nuclear radiation. Alarm about the aboveground nuclear tests and the harmful effects of radiation, coupled with fears of nuclear war, spurred scientists, emanating primarily from the left, to raise searching questions about the destructiveness of our civilization. From this work, the modern ecology movement emerged...as her ecological critique developed, perceiving the destructiveness of the social encounter with the environment, she sought not merely to explain the world but to change it.[16]

A growing awareness and acceptance of ecological destruction caused by human actions informed almost all branches of knowledge, laying the foundations for the creation of specialised disciplines like environmental sciences, etc., while prompting the emergence of sub-branches for the study of the environmental issues within the established disciplines.[17] These developments also have had a profound impact on the writing of history, initially in the USA, but also followed by similar historical investigations in Europe and the former colonial world, including South Asia. In North America, the American Society for Environmental History was established in 1975, the first of such institutions dedicated to the historical study of the society-nature relationship. Contending that we have two histories to write – one of our "own countries" and the other of "planet earth" – Worster proposed in 1988 the writing of what he called 'planetary history'.

[15] Foster, *The Ecological Revolution*, p.68.
[16] ibid., pp.69-83.
[17] Daniel Botkin, *Discordant Harmony*

> When that larger planetary history gets fully written, it will surely have at its core the evolving relationship between humans and the natural world. Planetary history has been fundamentally environmental history. It has been the story of the long shifting away from direct and local interaction with the earth, as the defining context of daily life, to dealing with it more indirectly and globally, through the impersonal mediation of powerful centralised political institutions, elaborate technologies, and complicated economic structures. Some will insist that there have been significant gains in that shift and strong, compelling reasons for making it. True enough, but all the same the transformation did not come without costs, ecological as well as social, and the large part of the new planetary history must entail calculating those costs and determining who or what paid them and why.[18]

Donald Worster had already attempted at charting out this new genre of history with his first major work titled *Natures' Economy* that came out in 1977.[19] He recounted the development of explorations into the society-nature relationship in the western world – a history of ecological ideas to be more specific –from eighteenth century onwards. In his own words, he tried to "select and focus on the formative moments in the life history of modern ecology...a time when ecological thought underwent a significant transformation."[20] Clarence Glacken's work a decade earlier had studied the history of western thought on nature as well, and so did Carolyn Merchant and other historians thereafter.[21]

Transformations in ideas and thought, however, had a correlation with material transformations in the society and the physical environment. One such momentous transformation was induced by the new settlers of America after it was 'discovered' by Columbus in the fifteenth century. The historian Alfred Crosby narrated this process in his *Columbian Exchange*, and argued that it was

[18] Donald Worster, 'The Vulnerable Earth: Towards a Planetary History' in Donald Worster, ed. *The Ends of the Earth*, p.6
[19] Donald Worster, *Nature's Economy: A History of Ecological Ideas*, Cambridge: Cambridge University Press, 1998 (1977).
[20] Ibid., p.xii.
[21] Clarence J. Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*, Berkley: University of California Press, 1967.

not by swords alone that the New World was conquered. The diseases, animals and plants introduced by the white men destroyed the population of the indigenous people, depleted their food and livestock, and weakened their resistance to the colonisation process.[22] Though many of Crosby's arguments in this book have now been criticised – at times for lapsing into biological determinism – it nevertheless anticipated the works of 'environmental history' in the following decades.

Worster followed it up with *Dust Bowl* two years later, which is now considered to be one of the pioneering works of environmental history. It was also the expansive backdrop for John Steinbeck's classic novel *The Grapes of Wrath* published in 1939. Here he examined the history of a catastrophe that was the culmination of a process of land 'reclamation' for capitalist farming that led to widespread desertification and erosion of soil in the 1930s. The great economic boom after the World War I that increased the demand for food-grains in Europe, led the American farmers to invest enormous amounts of capital in land, technology, and machinery etc. for the production of wheat in the Great Plains of southern US. In the five years between 1925 and 1930 alone, 5,260,000 acres of prairie and grasslands were brought under cultivation. As Worster noted, "Americans blazed their way across a richly endowed continent with a ruthless, devastating efficiency unmatched by any people anywhere. When the white men came to the plains, they talked expansively of "busting" and "breaking" the land. And that is exactly what they did."[23] The mechanical ploughs and disks used for tilling the land turned the soil into fine grains, without any vegetation to keep it grounded. When the "black blizzards" began to sweep the plains in 1935, the entire region transformed into a veritable 'dust bowl' and a desert. To the author, "Some environmental catastrophes are nature's work, others are the slowly accumulating effects of ignorance or poverty. The Dust Bowl in contrast, was the

[22] Alfred W. Crosby, *The Columbian Exchange: The Biological and Cultural Consequences of 1492*, Westport, Connecticut: Praeger, 2003 (1972).
[23] Donald Worster, *The Dust Bowl: Southern Plains in the 1930s*, Oxford: Oxford University Press, 2004, (1979) p.4.

inevitable outcome of a culture that deliberately and self-consciously set itself that task of dominating and exploiting the land for all it was worth."[24]

These early works were continued and complemented in the next three decades by a large number of historical studies that looked into various aspects of the "problem of environment". The works of US historians like Alfred Crosby, William Cronon, Carolyn Merchant, Samuel Hays, Richard White, Donald Hughes, and others have expanded the scope of this field.[25] For instance, William Cronon contrasted the differences in the 'ecological footprints' of the settlers of New England as opposed to its original inhabitants, the indigenous tribal communities.[26] The founding of specialised journals like *Environment and History* came up in 1990s, showcasing a growing body of research. As the first decade of the twenty-first century comes to a close, Environmental History as a sub-branch of history has firmly established itself, incorporating the insights of not only conventional historiography but also of other disciplines of sciences and social sciences. At the same time, older branches of history such as agrarian history, spatial history, economic history etc. have also been influenced by the recent historical research into various aspects of the human-nature dialectic.

'Environmental History' in South Asia

In *The Ends of the Earth* – edited by Donald Worster and published in 1988 – carried an article by Richard P. Tucker, titled 'The Depletion of India's Forests under British Imperialism: Planters, Foresters and Peasants in Assam and

[24] Worster, *The Dust Bowl*, p.4.

[25] For reviews of the writing of environmental history in the USA, see Richard White, 'American Environmental History: The Development of a New Field', *Pacific Historical Review*, Vol. 54 No.4, 1985, pp.297-335; Carolyn Merchant, *The Columbia Guide to American Environmental History*, New York: Columbia University Press, 2002; Carolyn Merchant, Major Problems in American Environmental History, Lexington, Mass., D. C. Heath, 1993; Roderick Nash, *American Environmentalism: Readings in Conservation History*, New York: McGraw-Hill, 1990; Krech Shephard, et at eds. *Encyclopedia of World Environmental History*, London: Routledge, 2004; Ramachandra Guha, *Environmentalism: A Global History*, London: Routledge, 1999; Warren Louis, American Environmental History, New York: Blackwell, 2003; Donald Worster, 'Doing Environmental History', in Donald Worster, ed. *The Ends of the Earth*, pp.289-308, Donald Worster, *The Wealth of Nature: Environmental History and the Ecological Imagination*, New York: Oxford University Press, 1993.

[26] William Cronon, *The Changes in the Land: Indians, Colonists and the Ecology of New England*, New York: Hill and Wang, 2003 (1983).

Kerala'. Here Tucker argued that British rule in India, like other Western empires that colonised in the non-European world, must be viewed as a system of resource extraction and allocation, which determined not only who was to have access to nature's wealth but also the pattern of the 'biotic systems'.[27] There was a dramatic expansion of the arable land in the subcontinent between the years 1890 and 1970, whereby thirty million hectares of land were covered by forests and grasslands were transformed into areas of crop production and settlement. This agrarian expansion was a high 45 percent.[28] The strategy of the colonial state was to stimulate agrarian production by bringing more and more land under the plough, not by intensive cultivation in the same area. Moreover, the success or failure of agriculture was measured by the income earned by the state from the crops. This agrarian expansion was at the cost of forests, grasslands, meadows, and other tracts of land which were important 'biotic systems' that sustained the ecology of the subcontinent. But this was not the only cause of their depletion. As Tucker notes,

> Foresters and planters were two of the most important exotic species introduced into India from Europe. Like imported botanical species competing with indigenous flora, these two human groups became competitors with villagers for access to the land. Many elements of the history of forest reduction in modern India can be understood from a survey of the work of foresters and planters. Both were major actors in the drama of the British Empire as a system of resource management and exploitation.[29]

He then went on to examine the role of these two 'exotic species' or classes that were an integral part of the British Indian colonial system in changing the physical environment of two disparate regions of Asom and Kerala in the last two centuries. Tucker argued that the systematic and planned exploitation of forests and prairies went a long way in changing the ecological and social dynamics of these two regions. This was one of the early historical explorations

[27] Richard P. Tucker 'The Depletion of India's Forests under British Imperialism: Planters, Foresters and Peasants in Assam and Kerala', in Worster, ed., *The Ends of the Earth*, pp.118-141.
[28] John F. Richards, Edward S. Haynes and James R. Hagen, 'Changes in the Land and Human Productivity in Northern India, 1890-1970', Agricultural History, Vol. 59, No.4, October 1985, pp.523-48, cited in Richard Tucker, p.119
[29] Tucker, p.120

of the colonial forest and plantation policies in an ecological framework, which was also a part of an early attempt at mapping such changes outside of the First World.

Ramachandra Guha's *Unquiet Woods* is generally placed considered to be the first amongst an assortment of historical works to come up in the last twenty years and often clubbed together as 'environmental history' of South Asia. This is irrespective of the author himself or the people about whom he wrote hardly recognised it as a describing something related to the 'environment'. Published in 1989, this study foregrounded the ongoing Chipko movement in the hills of Uttarakhand –essentially a peasant struggle for defending their customary and communitarian entitlements over forests and hearths – and tracing the history and the shared ideology that underlie this movement, as well as the forces they had to struggle against in the past. Originally conceived as a sociology of the movement, in the words of the author "this study has turned into a more general history or of ecological decline and peasant resistance in this region, whose main focus is on recovering the history of forest-based resistance within which Chipko is small though distinguished part. In this study my study is both more and less than the history and sociology of the Chipko movement."[30] It was a time when a justifiably criticism could be made that the relation between ecological decline and colonialism was neglected by the contemporary historians of agrarian history and peasant resistance.

In order to reconstruct the historical context of the movement, Guha went back to examine the protracted conflicts between state forestry and the peasantry, which was based on the ideological differences in understanding the social role of forests in the colonial period. It was in a sense the exploration of "changing, and competing, human perception of the 'uses' of nature". This work follows the two trajectories of change: ownership and usufruct rights from forest-dwellers and village communities to the state, as well as the state's mediation of such policies through individual households rather than through village collectives.

[30] 'Preface', Ramachandra Guha, *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*', Delhi: Oxford University Press, 1989, p.xii.

This newly introduced system of forest management came in sharp contradiction with the existing one that led to prolonged conflicts. Further, Guha argued that 'Gandhian', 'non-violent' and 'traditional' ideology underpinned the struggle and the modes of protest adopted.

Unquiet Woods placed the Chipko movement in this continuum of peasant resistance to extraneous values and principles of resource use in the region, connecting it with the degradation of the Himalayan ecology. Even with the limitations of its work – of which there are many – it inaugurated a series of research on the society's changing relations with the forests of the subcontinent, and came to fruition in the next two decades.

Yet, in the mid-1990s it was to be lamented that if environmental history worldwide had come of age, in South Asia it was by and large in its infancy. "Environmental history in this region has yet to develop a firm intellectual base, a solid scholarly foundation", argued David Arnold and Ramachandra Guha while introducing a volume of 'Essays on the Environmental History of South Asia'.[31] Apart from discussing themes related to the forests such as 'forest practices' by 'local communities' and 'community forest management', it brought 'environmental' issues into the ambit of agrarian studies. Therefore we find discussions on small dams locally managed by village institutions, the impact of commercial irrigation, etc. it also brought for the first time the world of pastoralists and fisher people into the ambit of history. Such works accommodating diverse interests that nevertheless investigated diverse aspects of the interconnectedness of social classes and groups to the lived environment continued to enrich this new field of South Asian historiography continued in the following years. *Nature and the Orient* brought out in 1998 was an ambitious project to bring together multi-disciplinary studies of the human-nature relationship in the non-western world covering a long period of BC 5000 to the present.[32]

[31] David Arnold and Ramachandra Guha, eds. *Nature, Culture, Imperialism: Essays on the Environmental History of South Asia*, Delhi: Oxford University Press, 1995, p.1.
[32] Richard H. Grove, Vinita Damodaran and Satpal Sangwan, *Nature and the Orient: The Environmental History of South and Southeast Asia*¸ Delhi: Oxford University Press, 1998.

After Richard Grove's influential work *Green Imperialism* in 1996 on the early ideas and practices of conservation in the colonial world, along with Mahesh Rangarajan's *Fencing the Forest* on central India's forests and the colonial policies related to it, two more significant studies appeared in 1999.[33] Sumit Guha's *Environment and Ethnicity in India* also took a long-view of the historical process of "human use of the environment", tracing it for almost eight hundred years in the past from the present. He argued that by interacting with nature and with other social groups through the mediation of the institution of state, ethnicity-based identities were forged – an outcome that had a history dating back to the early medieval period. He examined the transformation of Mavel community to Rajput to Koli, and the ways the changes in the politics of identity was connected to the ecological context, particularly the forests in case of the tribal communities of Bhilwara and Gondwana in central India. It threw light on the changing human-nature relationships with the changes in the political institutions and cultural practices. It also was an attempt to correct a perceived neglect – as pointed out by K. Sivaramakrishnan – of the forests of central India as opposed to that of the Himalayan region.

Sivaramakrishnan's own work titled *Modern Forests* examined three aspects of colonial forestry that came up in the late nineteenth century British India. As per the author, he studied state forest policy "first, as a set of material technologies imposed on trees, grasses and wild animals; second, a legal regime aimed at appropriation and monopoly in the extraction of natural rents; and third, a system of rational knowledge that, ironically, became the site of a struggle among technocrats who vied for professional recognition at the upper level of bureaucracy."[34] Taking Jungle Mahal region as the area of study, the examined the dynamic of environmental change that accompanied colonial policies of forest management in south-western and northern Bengal. This was an attempt

[33] Mahesh Rangarajan, *Fencing the Forest: Conservation and Ecological Change in India's Central Provinces, 1860-1914*¸ Delhi: Oxford University Press, 1996; Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism 1600-1860*,Cambridge: Cambridge University Press, 1996.

[34] K. Sivaramakrishnan, *Modern Forests: Statemaking and Environmental Change in Colonial eastern India*, Stanford: Stanford University Press, 1999.

to "a dialectical relationship between patterns of human engagement with non-human environments and patterns of change in those environments as they influence patterns of socio-political patterns of human behaviour."[35]

Scientific forestry was a part of the colonial state-making process in the subcontinent, and reflected the contradictions of the state itself. The author noted that colonial forestry –in spite of its progressively elaborate and systematised body of law, regulations and enforcement mechanism – hardly achieved consistency in application. The state was forced to make exceptions to the law not so much as a mark of benevolence and flexibility, but to iron over internal contradictions or to cover its own weakness as an institution of rule. Thus, "sanctions and regulations were often relaxed, and exclusive claims were forsaken when they could either not be enforced or when bureaucratic agencies contested them."[36] Through the historical examination of southwest Bengal and north Bengal the work also demonstrated how the same forest polices of the state differentially influenced two distinct eco-zones.

Persistent historical interest in this field of historical research has deepened and extended our understanding of the unexplored or under-explored areas such as pastoralism, life in arid regions, grasslands apart from considerably broadening the focus from the dominant concern of South Asian environmental history – the forests, which still continues to draw much attention.[37] While these recent works went a long way in breaking new grounds hitherto historically unexplored, in the process they overlooked some of the important themes consistently explored by established sub-fields of the discipline. As it was pointed out,

[35] Ibid., pp.xv-xvi.
[36] 'Preface', ibid.
[37] R. R. Prasad, *Pastoral Nomadism in Arid Zones of India: Socio-Demographic and Ecological Aspects*, Hyderabad: Discovery Publishing House, 1994. Other notable related works are Archana Prasad, *Environmentalism and the Left: Contemporary Debates and Future Agendas in Tribal Areas*, New Delhi: Leftword Books, 2004; Gunnel Cederlof and K. Sivaramakrishnan, Ecological Nationalisms: Nature, Livelihoods, and Identities in South Asia, Washington: Washington University Press, 2006; Neena Ambre Rao, *Forest Ecology in India: Colonial Maharashtra 1850-1950*, Michigan: University of Michigan Press, 2007.

> Over the years a rift has developed between the concerns of agrarian historians and those of environmental history. The growth of environmental history has been accompanied, in some ways, by a decline of interest in agrarian history; the former, in fact, has defined itself in opposition to the latter...If the old agrarian history neglected the forests and pastures, environmental history now has banished the peasant fields and farms from the realm of historical concern. It was as if these histories were not connected, as if environment did not impinge on the agrarian world.[38]

The point was to show nature and society, forests and farms etc. in all their interconnectedness. For instance, forests and grasslands permeated the lives of the peasants, while forests-communities had strong historical ties with the agrarian world – sometimes contradictory, while in others, complimentary. Thus, the agrarian and the natural worlds were not mutually exclusive, it was argued, but connected by innumerable inter-linkages, which require historical investigation. Later works of history writing seems to be more conscious of the need "for a more nuanced dialectical relationship between the world of agrarian production and environmental change."[39]

Such critique of environmental history raises a fundamental question. The history of forests in South Asia has remained primarily focussed on the state's role – both before 1947and after – in influencing the existing relations of the people with the forests. Can there be any 'environmental history' which does not take into serious account the people that inhabit the 'environment' – whether be it an agrarian, forested, arid, riverine, mountainous, oceanic, or any other physical setting? Can environment history exist on its own without taking into account the society in all its complexities, the people who are the makers of history, which works upon nature and not only is worked upon by it? Experience of social movements – the driving force to give birth to modern 'environmental' thought in the first place – particularly in the subcontinent goes to show that 'environmental' concerns alone have not and will not become the prime agenda

[38] Neeladri Bhattacharya, 'Introduction' *Studies in History*, *Special Issue: Forests*, *Fields and Pastures*, Vol. XIV, No. 2, July-December 1998, p.165.
[39] Aruna Agrawal and K. Sivaramakrishnan, eds. *Social Nature: Resources*, *Representations*, *and Rule in India*, 'Introduction', Delhi: Oxford University Press, 2001, p.13.

of mass movements, with the possible exception of a few isolated struggles. It is necessary for history is to remain a tool for social transformation, and that alone can transform the exploitative and destructive society-nature relationship that dominates present South Asia. This is more so at a time when the insistence made a good twenty years back that struggles like Chipko "are assertive, actively challenging the ruling class vision of a homogenising urban-industrial culture" fell far short of their objectives.[40] When longstanding movements like that of the Narmada Valley have been well and truly defeated or cast away. When in their place, transformative movements today are not only being imbibed by the marginalised classes and communities including that of the vast swathes of forests in central and eastern India, but is being enriched and advanced in the course of building a better, just and non-exploitative social order, where nature once again becomes a part and not a victim of social development.

Rivers as a field of History

> *To write history without putting any water in it is to leave out a large part of the story. Human experience has not been so dry as that.*[41]

Like other elements of the inanimate natural world, with rivers too societies have had an intimate relation. But unlike the forests, which are generally seen in opposition to the civilised world, rivers were equally a part of wilderness and civilisation, of the rural and the urban, of the hills and the plains. Histories have been written of the ancient river-valley civilisations and of the great urban settlements on the major rivers of the world. The relation of those societies with the rivers has also been talked about, though even if circumstantially. Methods and means of making water available from the rivers to the settlements and agricultural fields – through aqueducts or irrigation canals – have been recorded in history. However, such references to the rivers and the riverine environment have remained mostly incidental to the telling of other stories, be it of agriculture, trade, urbanisation, navigation, and what not. However, it is only

[40] Guha, *Unquiet Woods*, p.196.
[41] Worster, Rivers of Empire, p.19.

very recently that the ways in which rivers work upon society and the manner in which society shapes rivers through its labour – thereby both going thorough transformation in the process – has been historically investigated.

Rivers of Empire is one such work of history, arguably unsurpassed by any of its kind in incisiveness and creativity even after twenty five years of its publication in 1985. Written by the US historian Donald Worster, this highly persuasive and passionately written book made a trenchant critique of the capitalist world order and its concomitant way of life through a historical recounting of the transformations in the Great Valley of California, USA. Free-flowing rivers turned into lifeless and regulated ditches through the use of technology presented a mirror image of what was wrong with capitalism. As Worster emphatically declared, "Here then is the true West which we see reflected in the waters of the modern irrigation ditch. It is, first and most basically, a culture and society built on, and absolutely dependent on, a sharply alienating, intensely managerial relationship with nature."[42]

The transformation Worster talked about - the emergence of the New West from the great plains of California – was unprecedented even by western standards. Nor were this a work of the blind forces of nature, but of conscious and deliberate actions of the society. The key to this transformation was the technological control of water. "It made possible not only the evolution of a prosperous agriculture but also, to a great extent, the growth of coastal cities like Los Angeles and San Francisco. It eventually made California the leading state in America, and perhaps the single most influential powerful area in the world for its size."[43] How did it all happen? The author tells us,

> men, driven by a vision of the valley's potential wealth and by a passion to possess it, shot out the waterfowl. They trapped out the furbearers. They cut down large numbers of the great spreading oaks, burned away the saltbush, the chaparral, the blackberry and willow thickets, and drained the tule marshes.

[42] Donald Worster, *Rivers of Empire: Water, Aridity and the Growth of the American West*, New York: Oxford University Press, 1985, p.5.
[43] Ibid., p.10.

> They decimated the large grazing herds, until only a tiny remnant of the elk remained in a wildlife preserve. As their food and habitat disappeared, so did the grizzly, the condor, and the wolf. And so did the aboriginal human settlers, the Yokut and the rest, who became the victims of disease, of superior force, of land hunger. In their place developed the wealthiest agricultural operation in the United States.[44]

But it was not just a matter of exercising control over water and over nature for private profit, as Worster argued. It was an effective means of consolidating political and economic power of the ruling classes, and of exercising its rule over the rest of the population. It was only in 1995, almost a decade later, that such themes in river history were taken up once again, by another American historian Richard White. His work *Organic Machine* documented the impact of modern dams on the ecology of the Columbia River – which he terms as the organic machine that integrates natural energy and human labour – its renowned salmon runs and the indigenous communities of American Indians that survived on the river.[45] It was a case of two different worldviews, ways of life and use of nature coming into conflict, and the resultant transformation of not only the river and its nature, but also the human settlements around it.

Research has also been carried out on the history of those technical and engineering government agencies that have been instrumental in imposing this transformation of nature, such as the US Army Corps of Engineers and Bureau of Reclamation, and their close tie-ups with the capitalist and imperial agriculture-industrial complex. Todd Shallat questioned role of the Army Corps of Engineers institution as 'a nation builder', and the ideological underpinnings of their representation of big dams as 'objects of national pride'.[46] The long term effects of large dams on river ecologies and human lives dependent on it had generated more research in the US, not necessarily from only historians. In *Silenced Rivers*, Patrick McCully critically examined the worldwide impact of these 'temples of

[44] Ibid., p.10.
[45] Richard White, Organic Machine: The Remaking of the Columbia River, New York: Hill and Wang, 1995.
[46] Todd Shallat, Structures in the Stream: Water, Science, and the Rise of the U. S. Army Corps of Engineers, Austin: University of Texas Press, 1994.

doom'. As he went on to demonstrate, a century of building large dams in different parts of the world and the destruction at different levels wrought by it

> have managed to tarnish seriously the lure of large dams as icons of progress and plenty. To many people, big dams have instead become symbols of the destruction of the natural world and of the corruption and arrogance of over-powerful and secretive corporations, bureaucracies and governments. Although hundreds of large dams are still under construction and many more are on engineer's drawing boards...public protests are provoked by just about every large dam that is now proposed in a democratic country. The international dam industry appears to be entering a recession from which it may never escape.[47]

Recent works by historians have built on these works to scrutinise the transformations in riverine environments, such as that of the Mississippi and Sacramento by Karen M. O'Neill's *Rivers by Design* published in 2006. The author traced the history of the turning of these rivers into 'national rivers'. As he puts it, "Over the years, rivers have had many political meanings and many economic uses...The Mississippi and Sacramento rivers were vital highways to the interior, sources of great fortunes, and symbols of regional identity. They were transformed politically into national rivers. Now they are simply two links in a national transportation system that has declined as road and rail systems have grown."[48]

And though histories of rivers in main have been written in the US, it by no means has remained confined only to that country. Attempts at the historical reconstruction of the transformation of riverine ecologies, habitations and landscapes through state and private intervention in other parts of the have also been made. Mark Cioc's work on the Rhine is one of such instances.[49] In the non-western countries, though, such attempts by historians have been very feeble, if not altogether absent. This is irrespective of the fact that these have been sites of

[47] Partick McCully: Silenced Rivers: The Ecology and Politics of Large Dams, London: Zed Books, 1996.
[48] Karen M. O'Niell, *Rivers by Design: State Power and the Origins of U.S. Flood Control*, Durham: Duke University Press, 2006.
[49] Mark Cioc, *The Rhine: An Eco-Biography*, Washington: University of Washington Press, 2002.

people's struggles opposing the projects that threaten to dispossess them of their land and destroy their culture while transforming their lived environment for private profit. Indeed, these social movements have not failed to generate a considerable academic interest, the results of which can also be seen in recent South Asian scholarship.

The struggles of the people of the Narmada to defend their lives and livelihood – most of whom are adivasis – against proposed large dams including the Sardar Sarovar project prompted Amita Baviskar to carry out a sociological study of the people on the banks of the Narmada in 1990s.[50] The same movement has also been examined by Sanjay Sangvai's *The River and Life*, documenting its history and providing a case against forced displacement of people and the politics that necessitates it, while trying also to suggest an alternative path of people's development.[51]

Drowned and Dammed, the study of British colonialism and flood control in the Mahanadi delta can be said to be first historical work of its kind in South Asia. Rohan D'Souza examined "the British experience with flood-control in eastern India as being that of addressing the broader problem of tracking colonial capitalism's relationships with nature."[52] The means of the colonial state in doing so was primarily the construction of embankments for the protection of agrarian land and other property from destructive floods. "If anything, the embankments introduced a range of hydraulic complications that seemed to worsen deltaic inundations and undermine agrarian production. By mid-1850s, flood-control policies in the Orissa Delta had not only floundered but were clearly counterproductive as well."[53] The failed attempts at the introduction flood-control as a profitable venture were aimed at keeping afloat the interests of

[50] Amita Baviskar, In the Belly of the River: Tribal Conflicts over Development in the Narmada Valley, Delhi: Oxford University Press, 1995.
[51] Sanjay Sangvai, *The Rivers of History: People's Struggle in the Narmada Valley*, Mumbai: Earthcare Books, 2000.
[52] Rohan D'Souza, *Drowned and Dammed: Colonial Capitalism and Flood Control in Eastern India*, Delhi: Oxford University Press, 2006
[53] Ibid., pp.14-15.

colonial capital. In the process, these interventions transformed the flood-dependent agrarian regime of Orissa into a flood-vulnerable one.

The flood-plains of North Bihar have also received some attention of late, with Praveen Singh's exploration of the dynamics of flood-control in relation to the zamindaris and the colonial state in the hundred years between 1850s and 1950s. A "major preoccupation" of the colonial state, flood-control was mediated through the zamindars who were made responsible by the state for the protection of the fields under their tenancy, while itself staying away from taking up such wok on the plea of financial non-viability. However, Singh reasoned that "The colonial government's control through indirect supervision at the local level faltered repeatedly. In the latter years the introduction of legal measures to implement a policy of 'scientific flood control' also proved ineffective."[54] Though bringing the focus of history to the colonial flood-control measures is a desirable development, there is also a need to situate river-history in terms of the larger society-nature dialectic, and the transformations therein.

An Overview of the Chapters

> *Assam may properly be called the valley of the Brahmaputra, navigable branches intersect it in every possible direction, and there is perhaps not a spot of habitated [sic] ground so situated, as to be more than a convenient distance from some navigable stream.*
>
> - M'Cosh, 1837[55]

The plains of Asom had been formed with the alluvial soil brought down by the River Brahmaputra and its tributaries over many millennia. This mighty river in its long course through the Tibetan plateau and the Himalayan mountains to the narrow valley between the Himalayan *terai* and its southern hill ranges, carries in its floods millions of tons of particles of silt and sand, depositing it in successive layers on its valley in Asom and delta on the Bay of Bengal. During this

[54] Praveen Singh, 'The Colonial State, Zamindars and the Politics of Flood Control in North Bihar (1850-1945)', IESHR, Vol. 45, No.2 (2008), pp.239-59.
[55] M'Cosh, John, *Topography of Assam*. Calcutta: G. H. Huttman, Bengal Military Orphan Press, 1837.

continuous geophysical process, the river through its incessant annual floods have altered the level of the ground and have given it an undulating shape, with both banks gradually sloping down towards the river that cuts through the middle of the Valley from east to west, and works as the natural basin.

What has the river Brahmaputra and its numerous tributaries criss-crossing its two banks meant to the people who have inhabited them? With its imposing presence which has evoked songs, poems and stories in the oral literature, the people have almost given it the status of a living being, bestowed with a life of its own. It is a river which at once inspires fear as well as admiration, happiness as well as sorrow. It is a river that has a presence in every person's life on its banks. It is a river which has been engaged in the perpetual acts of destruction and creation of life and the environs that sustain it. This is a river which is now in the process of being 'tamed' – supposedly for ushering in 'development' – along with many other major rivers of the subcontinent.

What was life on its banks before a free-flowing river is converted into a regulated stream, and what will be life after? What changes this profound transformation will be made by the structures coming up across the Brahmaputra and its main tributaries? What lies in store for in the future for the millions of people, accustomed for centuries, to cohabit the river? Will it bring 'development' to the people, or will turn out to be a disaster? Who makes the decisions that changes the relation of the people with the river in a drastic manner? What has led to the coming about of the idea of a regulated river in this region, who were the proponents of this idea, who needs it and why? What are the practices that are predicated on such ideas? This is just one trajectory of the numerous questions that a historical study of the Brahmaputra can and does throw up. The nature of these questions ranges from the scientific to the social and the political. In fact, the aim will be to bring forth the inter-linkages between science and politics, or in a narrower sense, political economy. To even begin to understand these questions which are justifiably being asked today, we need to make many detours and investigate many aspects of social life, and have to explore many related questions. To put the history of the people and its changing

relations with the river in context, we need to examine the factors that bring such relations into existence and sustain them in the first place.

When we talk of a history of the Brahmaputra in the last two centuries, we talk of the social history of the river, and not its natural history. Here people and their social life play the central role. For the region and its people, it is particular epoch of history with its own distinctiveness. From the early nineteenth century, it is a history of colonialism, and of semi-colonial and neo-colonial forms of exploitation after mid-twentieth century. It is a period when the people of the region have suffered and have also struggled against imperial domination. Colonialism ushered in a process that has sought to remould, and to an extent has remoulded the social relations, with a direct bearing on a transformation of the human-nature relationship. There are reasons to argue that the processes unleashed by colonial state still hold sway in the politics and policies of the Indian state when it comes to the attempt to remould people's relation to their lived environment – be it the forests, hills or the rivers. This is also the precursor to the forging of an extractive and exploitative relation with the Brahmaputra and the people on its banks in the late-twentieth century mainly through the state's mediation and accompanied by the rhetoric of domination over the rivers. This process is not unique to the Brahmaputra Valley; it has its parallels in the Indian subcontinent that came under colonial rule.

All tales, historical or otherwise, need not begin at the beginning. But as the unwritten rule of narrative goes, all stories need to have a beginning and an end. The story of the Brahmaputra in the present work, in some sense, begins with the search for the beginning in the late nineteenth century, the origin of the river. It culminates in the description of the river going through a metamorphosis in the late twentieth century, after which the river will cease to be, or to put it grimly, the beginning of the end of the river. What this work sets out to capture is the story in between, i.e., between the beginning and the end of the Brahmaputra.

The first chapter surveys the ways in which the river Brahmaputra presents itself in the medieval narratives not merely as a passive site for events of historic

importance to unfold, but as a factor that had a bearing on their outcome. The Brahmaputra, as the most important conduit to travel to and in Asom was described by travellers and chroniclers and located by the early cartographers of the region, some of which are recounted here. Of the series of cartographic representations of the river, James Rennell's work in the mid-eighteenth century came to be considered as the most scientific, even though he too did not have the means to comply with the conventions of geography while studying the Brahmaputra. The later cartographic representations of the river are by professional colonial surveyors who were entrusted the task of mapping out the *terra incognita*. A few intriguing questions were specifically investigated by the colonial government while commissioning the river-surveys on the Brahmaputra. First, where did the river originate? Second, what was the true identity of the river, i.e., were the River Tsangpo of Tibet was identical with the Brhampautra of Asom? Third, if both indeed were one and the same, then how did the river descend the dizzying heights of about 5000 meters that separated its two valleys in Tibet and Asom? Were there somewhere in the impregnable forests of the North Eastern Frontier existed the highest waterfall in the world? These were the geographical 'mysteries' of the Brahmaputra, to resolve which explorers were sent across the Himalayan kingdoms, and the chapter recounts some of these journeys. Significantly, all the important survey works on the Brahmaputra in the region were part of one military expedition another, and it was as true in 1910s as it was 1790s. The colonial surveyors carried the compass on one hand and the gun on the other while mapping the Brahmaputra and the region surrounding it. It was an integral part of colonial domination and subjugation.

The river has been a source and site for reproduction of life. For the majority of the people, the rivers were a source of livelihood and sustenance, though for some like fishery leaseholders it was also a source of profit. It is significant to note that occupations related to the rivers such as fishing were looked down upon in a caste-divided Hindu society like in the Brahmaputra Valley, while the fisher-folk were one of the most marginal classes with hardly any means of production at their disposal. Their condition became all the more precarious

after commercialisation of fishing in the colonial period, but they continued to survive even in highly exploitative social conditions. The second chapter briefly recounts the state of fishing and the fish-people in the colonial period, along with another occupation that did not survive this period, i.e., gold-washing on the rivers of the Valley. The chapter also talks about boats and boat-making as well as the practice of catching drift-timber on the rivers during the floods. None of these occupations were free from the impact of policies pursued by the colonial state that were aimed at maximisation of revenue generation.

The third chapter is a foray into the history of settlement and demographic patterns in the nineteenth-century Brahmaputra Valley. The Brahmaputra Valley is distinguished by three distinct topographical sub-zones, and we argue that each had its distinct natural characteristics that influenced the ways of life different from one another. The relation of the people inhabiting the three sub-zones of the riverine tract, the submontane tract, and the flood-immune permanent rice-tract in between, were different. Along with it, we also examine the demographic trends of the Valley from early decades of colonial rule to the first decades of the twentieth century to examine the correlation between the trends in demography and settlement. We argue that there was an increasing pressure on cultivable fallow land due to the grant of land-leases for tea plantation and the declaration of large forest tracts as Reserved Forests. Yet, the colonial government was of the opinion that Asom was a country of abundant land that could never be exhausted by the 'lazy' and 'non-enterprising' native peasantry. The colonial state therefore decided to encourage the immigration of peasants from the neighbouring provinces to Asom in the early decades of the twentieth century. This policy in the long run had the effect of paving the way for a new relationship with the Brahmaputra, and this is discussed in fourth chapter.

Floods were a common and annual phenomenon in Asom, as usual as the monsoon, the summer and the winter. Floods had both its beneficial and destructive aspects and the inhabitants of the Valley new it well. Yet, the medieval Ahom state is known for its embankment works that were aimed at reclaiming land for cultivation as well as to protect them from destructive floods.

The fifth chapter discusses the approach of the colonial state towards these works, which they inherited in a dilapidated condition. The state was not willing to put any strain on its revenue potentials by taking up schemes for the restoration or construction of embankments in the nineteenth century, other than spending the small sums for the upkeep of the most urgent of such works. When it did show urgency, it was usually for those embankments which were also highways of strategic importance. Otherwise, the state was content in encouraging its subjects to take up such works by themselves. But after the great earthquake of 1897 the intensity of the Brahmaputra floods appeared to have gone up, and the state considered construction of embankments that involved the expense of considerable sums.

However, the construction of embankments alone was not sufficient for the sustenance of the peasantry and their cultivation that were affected by the floods and erosion of the rivers. The colonial state devised flood mitigation policies in the first decades of the twentieth century, which included immediate flood relief, grant of gratuitous relief, distribution of food and seeds, suspension and remission of land revenue, distribution of agricultural loan, and so on. The emergence of annual floods of the Brahmaputra as a calamity in the first half of the twentieth century and the state's investigation of the causes of floods in this period were connected developments. The incidence of floods was exacerbated by the prevailing social conditions, where the poor and landless peasants had to bear the most severe burden of the state's high revenue demand and the moneylender's obligations. These issues are explored in the sixth chapter.

The ideological and material roots of the mega dams on the Brahmaputra's major tributaries can be traced to the mid-twentieth century. The 'problem' of floods was presented by the regional ruling classes as a cause of Asom's sufferings, and the big dams as its solution. Though these hopes were only to materialise only in late-twentieth century, the posing of the question of Asom's underdevelopment in such a manner is to already anticipate such an outcome. An urgent resolution of the 'problem' was called for by the great earthquake of 1950, which once again altered the fragile geophysical landscape of the Valley. State-scientists and

experts from India, Europe and the US examined the river system, and came to one near-unanimous conclusion - the need for the taming of the 'problem river'. While the provincial government was to take care of the short term measures of flood control by primarily building embankments, the Government of India was to take steps for the long term solution – the complete 'stabilisation' of the river through multi-purpose reservoirs across the major tributaries of the river. This was the building blocks that prepared the foundations of a complete metamorphosis of the Brahmaputra – from a free-flowing river to a tamed and controlled one. The adverse implications of this on the people who inhabit the river and its numerous tributaries, the dispossession, displacement and destruction it was to bring to people's lives, the degradation of the ecosystem, the dangers of mega-structures in a highly-seismic region, all were relegated to a background. But these difficult questions are being posed today to the state by the people of the region, who are protesting against these projects. The future of the region, its people and the Brahmaputra will be decided by the outcome of the struggle between the people and the state.

CHAPTER I

STUDYING RIVERS

Underlying the River Brahmaputra from the *buranjis* or the royal chronicles of medieval Asom to the contemporary representations of the river in the early twenty-first century, a long history pervades the forms of knowing and understanding it. While in some cases the knowledge of the river was an outcome of the long process of productive activities that sustained and reproduced life in its Valley, in others there were conscious attempts at producing that knowledge by studying the river. The former was a part of everyday life of the people inhabiting the river valley, where knowledge in abstraction was indistinguishable from practice, while the latter signified a division of labour that necessitated the separation of theory and practice. Specialized study of the Brahmaputra can be said to have started with James Rennell's river-surveys in 1760s, and have continued till the present. What was a subject of a single discipline of study –cartography– in that period, made way for diversified and specialised branches of knowledge such as geography, geology, geomorphology, geophysics, hydrology, meteorology, etc. during the two and a half centuries that followed. This chapter seeks to recover some of the references to Asom's physical environs in the medieval period, while also discussing the

studies undertaken to produce knowledge about the Brahmaputra river system in the late eighteenth, nineteenth and early twentieth centuries. The study of the Brahmaputra and its various facets by the colonial state in the first half of the twentieth century and subsequently by the Indian state is a theme that has been looked into in the following chapters.

A predominantly agrarian economy was well established in large parts of the Brahmaputra Valley by the seventeenth century, on the basis of which the Ahom state consolidated its political power. Development of handicrafts and a mercantile exchange kept pace with this expansion of the agrarian frontier. Agriculture, like any other form of activity required to reproduce life, demands an intimate understanding of the factors that makes possible cultivation through a transformation of the lived environment with human labour. Much of the plains of eastern Asom were transformed from forests and low-lying inundated lands to settled agricultural fields in the medieval period. To prepare the land for cultivation, fresh ground was broken by clearing jungle, the soil was ploughed and treated, arrangements were made to retain sufficient amount of water on the fields so that the seeds could be sown or seedlings transplanted. As most of the Valley was annually inundated by the Brahmaputra and its tributaries, the fields needed to be protected from it, and embankments were constructed as the primary means of flood protection. After the harvest, the grains had to be kept safe from the damage that could be caused by the river's waters, for which granaries needed to be designed in a particular way. These were some of the practices that the peasants of the Valley were adapted to. The knowledge of the climate, the rhythm of seasons, the nature of the soil and its location, the character of the seeds, as well as the variations in water and other inputs, etc., was a part of the agricultural practices. Similarly, those who made a living off fishing in the rivers and lakes of the Valley knew the behaviour and life-cycle of their catch, the skills of catching fish with suitable application of equipments and instruments, the ways of producing and applying them, of treating the catch to make it more durable and saleable. The boat-makers knew the best trees to make boats from, the ways of treating the log before using them to carve out the boats, and the best mode of propelling them in the Valley's rivers. The people entrusted

to wash gold from the rivers likewise developed the technical know-how for undertaking such a job which required specialized skills, and particular communities –like the *Sonowals*– had acquired the expertise after generations of practice. Such knowledge was acquired through engagement in production, through the practice of human labour, without which no knowledge was possible.

None of this knowledge which was acquired through productive activities to reproduce life was considered to be important enough to be recorded in the written form in the medieval times. The division of mental and manual labour was by then so developed and hierarchised in medieval Asom that only the knowledge and expertise of the class of kings, military commanders and priests were considered to be worthy to be written down and passed on for circulation. It was the requirements of the British colonial empire which annexed Asom in 1826 that propelled the collection and recording of information about the people and their knowledge in a systematic manner, even though census of the population and their professions was undertaken by the Ahom state as well. Nevertheless, very little information about the forms of knowledge relating to the activities of the people engaged in physical labour –the vast majority of the eighteenth or early-nineteenth-century working population of the Valley– is recorded and is accessible today. Much of this knowledge died out with the passing away of many of these occupations, like that of the gold-washing, while others have survived over time in folk traditions and oral culture of the people. Nevertheless, we do get a glimpse of the climate, terrain, and the natural environment of Asom in the Middle Ages from the royal chronicles, travelogues and tracts on military campaigns from that period, and the manner in which the people of the region used this knowledge to bear upon the outcomes of military engagements with their foreign adversaries. Here the rivers do not remain merely a setting for historical events to unfold, but plays a crucial role in influencing their outcome.

The Land of No Return: Pre-Colonial Accounts of the Brahmaputra

The medieval royal chronicles, military tracts, and traveller's accounts carry references to the rivers or the events that took place on and around them, the context of which was primarily the long drawn political conflict between the Ahom and the Mughal states when the former fought to defend its independence from the aggressors from its western frontiers.

In the 'Description of Asam' by Mohammed Cazim who accompanied the invading army of the Mughal emperor Aurangzeb in the seventeenth century, the River Brahmaputra is said to divide the country of *Asam* into two parts. While the region on the north bank of the river was called *Uttarcul,* the southern bank was described as *Dacshincul*.[1] The river was the main conduit for the Mughal army to enter Asom, and an important site for decisive battles. Proximity to the rivers provided better mobility and strategic advantage, and thick forest-cover and foliage provided protection from enemy predation. Therefore, even though the *Uttarkul* surpassed "*Dakshincul* in population and tillage, [but] as the latter contains a greater tract of wild forests, and places difficult to access, the rulers of Assam have chosen to reside in it for the convenience of control, and have erected the capital of the kingdom".[2] Garhgaon, the city of the royal seat of the Ahoms, was at that period located across the River '*Dhonec*', a principal tributary of the Brahmaputra. Also, "the *Raja's* palace stands upon the bank of the '*Degoo'* [Dikhow], which flows through the city." Cazim informs that the Dikhow on which Garhgaon was located, was "lined on each side with houses, and there is small market, which contains no shopkeepers except sellers of betel. The reason is that it is not customary for the inhabitants to buy provisions for daily use, because they lay up a stock for themselves, which lasts them a year."[3]

Cazim notes that the rivers of Assam were goldmines endowed with riches, at times literally so. "Gold and silver are procured…in the whole country of *Asam*, by washing the sand of the rivers." For the rulers of Asom, this was one of the

[1] Henry Vansittart, tr., 'A Description *of* Asam *by* Mohammad Cazim, Translated form the Persian' *Asiatic Researches*, Vol. II, p.130.
[2] ibid., p.131.
[3] ibid., p.135

major sources of revenue.[4] According to this account, approximately 12,000 to 20,000 inhabitants were employed in gold-washing at that time, and every such person was to pay, by regulation, a tax of one *tola* of gold a year to the royal treasury of the Ahom kings.

The terrain and the peculiarity of the environs rendered the Valley difficult to be acquired and retained by invading forces, their progress to the country being "obstructed by thick and dangerous bushes, and broad and boisterous rivers".[5] Taking advantage of the terrain and a better knowledge of it, the Rajas of Asom had "curbed the ambitions, and checked the conquests of the most victorious princes of *Hindustan…* [W]henever an invading army has entered their territories, the *Asamians* have covered themselves in strong posts, and have distressed the army with stratagems, surprises, and alarms, and [also] by cutting off their provisions." In doing so, "they have declined a battle in the field, but have carried the peasants into the mountains, burnt the grain, and left the country empty." This was nothing but the practice of the principles and methods of what later came to be known as guerilla warfare, a method of war whereby weaker and smaller armies took on bigger adversaries by using the terrain to its advantage, and by avoiding frontal battles on the field, by preserving ones own army while destroying the enemy in parts over a long period of time.

By the time the rainy season had set in, and swelling flood-waters inundated the routes of retreat for the advancing enemy, the *Raja's* men "watched their opportunity to make excursions, and vent their rage; the famished invaders have either become their prisoners, or been put to death. In this manner powerful and numerous armies have been sunk in that whirlpool of destruction, and not a soul has escaped."[6] Following the tactics of attrition rather than of conventional wars, the rulers and military generals of the armies of the region could deal heavy blows on an invading army far superior in numbers, weapons and tools of war by involving the entire able-bodied male population into the conflict. Even in such

[4] ibid., p.133.
[5] ibid., p.138.
[6] Henry Vansittart, tr., 'A Description *of* Asam *by* Mohammad Cazim, Translated form the Persian' *Asiatic Researches*, Vol. II, p.130, pp.136-137.

asymmetrical wars, the use of the terrain to the advantage of the weaker defending army made the latter victorious. The use of naval warfare to favourably influence the outcome of a battle was common, a form where the Ahom army held its forte.

The English traveller Ralph Fitch who visited the Koch kingdom in eastern Asom in the mid-sixteenth century, verified that the topography and seasons peculiar to the region was used by the defending army to its advantage. He notes, "All the country is set with bamboos or canes made sharp at both ends and driven into the earth, and they can let in the water and drown the ground above knee-deep, so that [neither] men nor horses can pass. They poison all the waters if any wars be."[7] A similar portrayal of the country and its physical environment including the rivers is found in the renowned Chinese scholar Hiuen Tsiang's description, who visited the region during the reign of King of Kamarupa, Kumara Bhaskara Varman in the first half of the seventeenth century. Though he found the climate of the country "soft and temperate," the country to the east of it through which lie the route to the Szechuen Province of south-west China, a journey of two months, "the mountains and rivers present obstacles, and the pestilential air, the poisonous vapours, the fatal snakes, the destructive vegetation, all these causes of death prevail."[8] The rivers and boats on them provided the more easy means of movement, as "the roads are difficult to pass, insomuch that a foot-traveller proceeds with the greatest inconvenience." In Cazim's observation, "[T]here is one road wide enough for a horse; but the beginning of it contains thick forests for about half a *coss*. Afterwards, there is defile, which is stony and full of water. On each side is a mountain towering to the sky."[9]

Niccolao Manucci, the royal physician to the court of Aurangzeb, recounts the famous story of Mir Jumlah, the Mughal military general, who was deputed to "undertake the conquest of Assam."[10] The task assigned to Mir Jumlah was "to open to Aurangzeb a door for entering China. For that seemed an easy thing after

[7] Noted in E. A. Gait, *A History of Assam*, Guwahati: L.B.S. Publications, 1984 (1905) p.61.
[8] *Bell's Buddhist Records of the Western World*, Vol. II, p.195; cited in Gait, *A History of Assam*, pp.24-26.
[9] ibid., p.139.
[10] Niccolao Manucci, *Storia do Mogor*, *1653-1708*, tr. and ed. William Irvine, Vol.2, London, 1907-08.

the acquisition of Assam… [W]ith it as a base they could take Pegu, and through it enter into China." He would thereby "secure to himself immortal fame."[11] Aurangzeb, though might have had different ideas, for "it was the common belief that Aurangzeb ordered Mir Jumlah into Assam that he might be got rid of," the later being a formidable political opponent to the Emperor, seeking "occasion to excite internal commotions". Mir Jumlah was not expected to return alive from the Asom campaign, and he never did. It was so because, Manucci believes, "if it had been easy to get into, it was very difficult to get out of this country, owing to the floods, also to the ambushes laid by the natives."[12]

With forty thousand horsemen, and accompanying infantry, Mir Jumlah left Dhaka, and "[B]y way of the river he sent a large fleet commanded by Portuguese." After taking the frontier post of 'Aso' [Hajo] between Bengal and Assam, the combined forces "marched for twenty-eight days into the territory of Assam." The "Assamese", on the other hand, "believed that if the fleet were destroyed it would be easy to eat up the land army. For it would suffice to block the way to supplies, and then the army would waste away." This, to Manucci, was very easy to accomplish, as the country was mountainous and its paths very narrow. For this purpose, Manucci goes on, a very powerful Ahom fleet appeared one day, and coming down with the stream in its favour, "it looked as if it would swallow up all the Portuguese and their boats." But the latter managed to ward them off, and the force of the current carried

> the Assamese past their goal, the Portuguese meanwhile making a great din with their mortars and matchlocks. When the Assamese had passed their enemy they veered, the Portuguese fell upon them with such impetuosity that in a little [time] the whole of that fleet was destroyed, some ships sent to the bottom, some captured, and altogether great loss being inflicted on the Assamese.

"Glorious and triumphant," Mir Jumlah believed that this victory would eventually ensure "the whole of Assam in his grasp", though such euphoria was

[11] Francois Bernier, *Travels in the Mogul Empire*, 1658-68, tr. and ed. Archibald Constable, London 1891.
[12] ibid, p.171.

short lived. He commanded his forces further eastward, and captured Garhgaon, the Ahom capital. The *Rajah* "retired" to the mountains "of the kingdom of *Lassa*"[13], and "awaited the coming of the rainy season, in which the floods cover the low ground, for which reason the cities and villages are placed upon heights." Being unable to follow the *Rajah* in his flight into the mountains, "Mir Jumlah continued to amuse himself in the said city." Stray skirmishes and raids against the invading forces continued meanwhile, "until the arrival of the rainy season, *which also fought for* [the Rajah]." The forces of the Mir started depleting, less from enemy attacks but from diseases and scarcity of food. He was eventually compelled by these adverse circumstances to undertake a forced retreat. On the way back, "[W]ith great difficulty he reached the fortress of Aso", and soon died of illness "on the 31st [of] March, 1663 at Khizarpur in Kuch Behar."[14] Manucci attributed the elements of Nature to this inglorious downfall of the great Mughal army, as he concluded the narrative of the campaign by noting that "[I]t was not for want of courage nor of determination that he left to the Assamese their indigenous king, but the mountains of the interior cannot be overcome, and the seasons were against him."[15]

Francois Bernier's narrative of the same event too has something to suggest about the influence of Nature's elements in foreclosing the fate of Mir Jumlah's enterprise. Once Garhgaon was occupied and the enemy dispersed, the invading forces had to face heavy downpour which fell "sooner than is customary," inundating "every spot of ground, with the exception of villages built on eminences."[16] In the mean time, the Ahom Raja ordered to clear the whole country around the Emir's position of cattle and every kind of provision, so that "ere the rains ceased the army was reduced to great and urgent distress, notwithstanding the immense reaches which it had accumulated." There was a stalemate in the progress of the Mughal general, who found it equally difficult to advance or to retreat. The mountains in front presented "impracticable" barriers, while a retreat was prevented not only by the waters and deep mud, but also by

[13] Bernier, *Travels*, p.172.
[14] ibid., p.173.
[15] Manucci, *Storia*, p.75.
[16] Bernier, *Travels*, pp.172-173.

the acts of sabotage ordered by the Raja to break down the embankment-cum-highway which formed the road to Chamdara. The *Emir* therefore was forced to wait out in his camp during the whole of the rainy season, and by the time dry weather set in, his men were so dispirited by the incessant ambushes, fatigue and long privations, that he abandoned the idea of conquering "Acham".

Though the endeavour was in the end a failure for the Mughals in terms of territorial conquest, the spoils of war in boatloads were sent to Bengal by Mir Jumlah. Manucci accounts the captured boats of Asom that he saw in Dhaka, on which these were sent down the great river. These "huge boats…had extremely high poops, [which were] carved with ugly, fear-inspiring faces. Their armament was of small pieces, swivel-guns (*trilhoens*) and *petrechos* of bronze, of which the muzzles whence the ball issues were fashioned into shapes of animals– tigers, lions, dogs, elephants, and crocodiles."[17]

The decimation of invading armies in a land into which if one ventured, "he has not leave [sic] to return,"[18] further finds mention in Cazim's narrative. He stops short of mentioning the fateful outcome of Mir Jumlah's expedition, preferring only to portray its early successes. He also finds precedence to such defeats for the Mughal army in the region in the past. "[F]ormerly, HUSAIN SHAH, a king of *Bengal*, undertook an expedition against *Asam*," and carried with him a formidable force in cavalry, infantry, and boats. The campaign started successfully. He entered the country, and erected the "standard of superiority and conquest." The *Raja* being unable to encounter him in the field, evacuated the plains, and retreated to the mountains. Husain Shah left his son, with a large army to keep possession of the country, and returned to Bengal. But as with Mir Jumlah, soon misfortune followed for this army too, as with the coming of the rainy season the roads were closed by the inundation encircling and trapping the camps. The Ahom army then descended from the mountains, surrounded the Shah's army, "skirmished" with them, and cut off their provisions till they were

[17] Manucci, *Storia*, p.75.
[18] Vanisttart, 'A Description of Asam by Mohammed Cazim', p.137.

reduced to such straights that they were all, in a short time, either decimated or made prisoners.[19]

"In the same manner," Cazim states, "MOHAMMED *Shah*, the son of TOGLUC *Shah*, who was king of several of the provinces of *Hindustan*", sent a well-equipped army of a hundred thousand cavalry to conquer Asom. But they were "all devoted to oblivion in that country of enchantment; and no intelligence or vestige of them remained." To avenge this disaster, enforcement was soon dispatched from Bengal, but when they came back, "they were panic-struck, and shrunk from the enterprise." Such experiences rendered "[t]he natives of *Hindustan* [to] consider [the people of Assam] as wizzards [sic] and magicians, and pronounce the name of that country in all their incantations and counter-charms. *They say, that every person who sets his foot there, is under the influence of witchcraft, and cannot find the road to return*." [20]

The above narratives of war and military campaign indicate the advantages of an intimate knowledge of Nature, the merits of adaptability and acclimatisation to the terrain and its environs, and the ability to use the elements to ones favour. In this regard, the superior knowledge of the indigenous people of the Brahmaputra Valley in comparison to that of their adversaries is clearly in evidence, and with favourable social and political factors, they could repeatedly repel invasions and defend their independence. The powerful European trading companies that vied for establishing domination over the eastern markets and trade-routes from early seventeenth century onwards were only too aware of the advantages of superior knowledge of the people and places they engaged with, and spent considerable resources and energy in acquiring them.

One of the important components in unraveling the *terra incognita* was a better knowledge of the rivers of the East. These rivers were avenues to enter the hinterland as opposed to the oceans which were the medium of inter-continental trade, and the control of both was of crucial strategic and commercial

[19] ibid., p.137.
[20] ibid., p.137, emphasis added.

importance. For effective political and military control of these routes, a reliable corpus of information was to be built up, which came to be understood as those forms of standardized data that were acquired by the application of scientific methods of knowledge production. But this was not a simple matter of applying in colonies the methods of scientific and objective technique that were developed in contemporary Europe. As we shall see in the case of European attempts at 'discovering' the Brahmaputra, which spanned over centuries and are briefly recounted here, the drawing of a sharp line between the *scientific* and *non-scientific* forms of knowledge or for that matter between native and European knowledge was not always feasible for the colonial men of science. The triumph of the present-day imagining of the Brahmaputra shaped by maps that portray it as a single river originating in the Himalayas and emptying itself in the Bay of Bengal –which is essentially a product of the colonial pursuit of knowledge and hardly older than a century– is all pervasive today. So much so that it may sometimes lead us to ignore the fact that there were other equally powerful and socially acceptable imaginings of the river that existed in the past, and that the distinction between the scientific and the non-scientific, the objective and the subjective, was not always as sharply drawn out as it may appear today. The pursuit of scientific knowledge in the colony was deeply integrated with imperialism, which not only eclipsed other imaginings of the river in particular and of Nature in general, but was also instrumental in the domination of peoples, societies and Nature. So much so that one may be too blinded to believe that this process too had a history. To decolonise non-European science from its colonial past and its imperial present, an attempt at retelling this history may be a reasonable starting point.

Locating the Brahmaputra: Medieval Cartography

> *The mountains presented a formidable barrier to all knowledge, and it was not until the 17th century that the first Jesuit missionaries made their adventurous journeys [across the Himalayas], endeavouring to establish mission posts in these inhospitable regions, and sending back accounts of their travels, and descriptions of the mountains, country, and people. They did not make their journeys for the sake of exploration or geography, but to carry the Gospel into the far lands.*[21]
>
> - R. H. Phillimore

The narratives of royal chroniclers, travellers, explorers, missionaries, mendicants, etc. of the 'Middle Ages', and also the *Buranji*s, the royal chronicles of the Ahom court, has much to offer towards the knowledge of the terrain, the landscape, and much of what was to be the objects of interest to the disciplines of science. They were 'discovered', studied, translated, published, and debated in journals dedicated to the study of the Orient subsequently in the colonial period. They were part of a desire to know the unknown across the frontier.[22] Yet they were to stand out as different from what was termed the scientific, from such forms of knowledge as produced by Major James Rennell, 'the father of [our] Indian Geography,'[23] during his extensive surveys of the territory under the East India Company, including many of its major river-routes.

The earlier works of cartography that depicted the geography of the region seemed to stand on the verge of the fabulous and the metaphysical to the later day scientists. Herman Moll, writing in the early eighteenth century, mentions that the lake of 'Chiamay' lies in 'Acham' from where the River Brahmaputra ensued, and ran into the Bay of Bengal after passing through several kingdoms. It was by sailing up this river that the 'Moguls' first discovered the country, he adds. Most of the early representations of the land beyond the eastern frontiers of East India Company's Bengal depict this Lake Chiamay as the source of major rivers of the region, including the Brahmaputra, the Ganges, and the Irrawaddy.

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[21] R. H. Phillimore, *Historical Records of the Survey of India*, Vol. I, Dehra Dun: Surveyor General of India, 1945, p.67.

[22] Cazim's description of 'Asam' for example, was translated and published in the *Asiatic Researches*, "because our government has an interest in being as well acquainted as possible with all the nations bordering on the British territories." Editorial Note to Vansittart, tr. 'A Description of Assam', p.130.

[23] As referred by J. D. Herbert, Deputy Surveyor General of India, 1829-31, in Phillimore, *Historical Records*, p.67.

Gerhard Kremer, a "mathematician and geographer", published an atlas in the year 1612 from Amsterdam, named *Mercator's Atlas*, where he depicts four rivers beyond the Ganges originating from this mysterious lake, which was later identified to be the Brahmakund of eastern Asom. Wilford, for example noted in late eighteenth century, that "The Chiamay Lake was said to be 180 miles in circumference… Four rivers are supposed to spring from this lake, but except the Brahma-putra, the others must issue from it through subterraneous channels."[24] Though such maps illustrated in detail the location of places situated in the coasts and islands on the sea as well as the more accessible areas inland; the hinterland and especially the region beyond the frontiers of Bengal however remained scant in detail. The maps of a land such as Asom about which nothing much could be known by the outsiders till that period, thus represented a space which to the later day practitioners of science appeared variously from being inaccurate and unreliable to simply being fabulous, imaginary and superstitious.

D'Anville's map, published in 1733, was the first to challenge the contemporary impression that the Brahmaputra originated from the Chiamay Lake. His map was prepared from surveys made by the "lamas" of Tibet, under the instructions of the Jesuit missionaries in China for the Emperor of that country. He showed the River Brahmaputra to emanate from the frontiers of Tibet. Yet, he believed it to be not more than 500 miles long, flowing north to south as it entered the Mughal territory in Bengal. The maps prepared by Jesuit travellers in Tibet, like the one drawn up by Father Desideri in 1715, were regarded as "sadly wanting in geographical interest."[25] Walker on the other hand thought that "the lamas' maps are generally very meagre, and only reliable in the vicinity of the principle roads between Lhasa and Pekin [sic]; in parts they are very misleading, and must have been compiled at best from rude estimates of distance and direction, and

[24] Cited in Phillimore, *Historical Records*, p.78. Francis Wilford (1750-1822) of the Bengal Engineers, described as "a gentleman of the first Geographical abilities in India." In April and May 1782, he surveyed the river channels between Khulna and Dacca, and early next year he surveyed those of the Ganges, "giving in his journal a most interesting discussion on the silting up of the rivers of Bengal and their possible control."

[25] T. G. Montgomerie, 'Report on the Trans-Himalayan Explorations, in Connexion with the Great Trigonometrical Survey of India, During 1865-7: Route-Survey made by Pundit -, from Nepal to Lhasa, and thence through the Upper Valley of the Brahmaputra to Its Source', *Proceedings of the Royal Geographical Society of London*, Vol.12, No.3 (1867-1868), p.169.

possibly even from mere hearsay or conjecture."[26] The fabulousness of such geographical presentations were self-evident, concurred the European reviewers and men of science in the middle of nineteenth century. A similar view was expressed with reference to Desideri's cartographic map in a proceeding of the Royal Geographical Society of London in 1868:

> The most important feature, for instance, in Desideri's account was his description of the way in which he crossed the rivers, by holding on a cow's tail. Having nothing else to commemorate, he filled pages of his narrative in insisting on the absolute necessity of cows to enable travellers to cross the rivers. Such was the style of geographical record and description with which the Jesuit accounts teemed. *It was different with the English officers who were sent to Tibet by Warren Hastings.*[27]

In contrast to the Jesuit cartographers, the eighteenth century works of James Rennell was perceived by the European scientific community as arriving at different and more reliable conclusions about the Brahmaputra and its source, produced by employing scientific means and deduced from his direct observation of the river along the borders of Asom and Bengal. He surveyed the river in its course in Bengal, and in 1765, extended it to a few miles into the Asom territory, where he was stopped by frontier guards of the native king.[28] Observing the river at Goalpara, an important trading centre of that time on the river at the border of Bengal and Asom, Rennell concluded that the Brahmaputra must be "very different from the description given of it in the Maps."[29] Observing the size and speed of the flow of it which he inscribed in his *Memoir of a Map of Hindoostan*, Rennell was convinced that the Brahmaputra was identical with the

[26] J. T. Walker, 'The Hydrography of South-Eastern Tibet', *Proceedings of the Royal Geographical Society and Monthly Record of Geography*, New Monthly Series, Vol.10, No.9, (September, 1888), pp.577-584.
[27] ibid., p.169, emphasis added.
[28] Rennell notes in his journal about the difficulties of moving into Asom for a British subject, "The Assam country begins from the Bonaash River on the north side of the Baramputrey & one of their Chokeys [boundary post] is placed directly opposite Gwalpara; but on the south side the Bengall the Provinces continue for upwards of 21 miles…we were not permitted to land on the Northern or Assam side, all the way, there being several *chokeys* placed; however we found means to lay down about 10 miles beyond the Bengall Frontiers, & in returning we coasted the Assam side near enough to inform ourselves of all the particulars which we wanted." in La Touche, T. H. D., ed. *The Journals of Major James Rennell*, 1910, pp.57-58, cited in Phillimore, *Historical Records*, p.20.
[29] ibid., p.79.

Tsangpo. This was contrary to the conclusions of D'Anville, who supposed this river to be the same with the 'River of Ava' or the Irrawaddy. This was so, since according to Rennell, "The Burrampooter was represented to him as one of the inferior streams that contributed its waters to the Ganges, and not as equal or superior."[30] This way, Rennell sought to resolve the 'mystery' shrouding the origin and course of a river which was to engage the attention and efforts of many future cartographic expeditions of the subsequent period. Moreover, he claimed to reveal to the world (or Europe) a secret: "*Till the year 1765, the Burrampooter, as a capital river, was unknown in Europe*".[31]

This statement, of course, was not entirely correct. Many European travellers had already 'discovered' this fact and registered it in their accounts. Father Desideri noted in his journal of 1715-16 that a river, after traversing Tibet from West to East, turned to South-East, entered 'Lhoba', and descending through Rangamati to the Mughal territory, joined the Ganges. John Stewart, "a great traveller," writer, and future secretary to the British colonial government at Fort William, also wrote about the true course of the Brahmaputra in 1763. Tieffenthaler, on the other hand, had already declared Brahmaputra's origin from around the Manasarovar Lake in the second half of eighteenth century.[32] The discovery of 'conclusive proofs' of the origin and true course of the Brahmaputra, however, had to wait more than a century since Rennell studied the river in late eighteenth century.

[30] Rennell, *Memoir*, *1788-93*, p.79.
[31] ibid., p.79. Emphasis added.
[32] ibid., p.79-80. Father Joseph Tieffenthaler (1710-85), born in Austria, and worked for the "Jesuit Order" in Central India. Described by Phillimore as a "Good linguist, mathematician, and astronomer, and devoted to geography." He sent from India "a large collection of maps and geographical papers" to the Jesuit headquarters in Paris and Copenhagen. Apart from his major work, *Descriptio Indiae*, he wrote a number of articles on the rivers of Hindustan, including 'Course of the Ganges, together with a Description of the Villages and Cities lying on both Banks,' 'Course of the Jumna, which is numbered among the Great Rivers,' etc. Rennell used his maps in drawing his own, and had subsequently modified many of the conclusions of the latter. "[Rennell] had subsequently to reject Tieffenthaler's version of the upper course of the Ganges." See, the 'Biographical Notes' to Phillimore, *Historical Records*, pp.388-389.

James Rennell and the Scientific Study of the Brahmaputra

Although the development of the sciences in Europe during its transition from feudalism to capitalism was influenced by the colonial experience, it was a part of the emergence of Industrial Revolution and a world capitalist system. It will, however, be incorrect to over-emphasise, as has been done by some, the role of colonies in moulding the nature and course of scientific development in Europe. In early nineteenth century, by the time the British East India Company conquered the Brahmaputra Valley and made it the part of the growing colonial empire, the science of geography in general and that of hydrology as a special branch of studying water and water-bodies had already undergone considerable development in Europe.

The cartographer James Rennell, who most elaborately had applied geography as a science to the study of rivers in the subcontinent in the latter half of the eighteenth century, –was commissioned by the Company to facilitate the smooth sailing of ships along the large rivers of Hindustan. Rennell conducted his surveys on the basis of direct observation and personal inspection in general, but in the case of mapping the Brahmaputra, he was forced to move away from employing the accepted and tested rules of geography, i.e., precisely the very means which were later dismissed as conjectural, fabulous, or simply non-scientific.[33] Though the surveyor was convinced that Tsangpo of Tibet and Brahmaputra of Asom were names of the same river, a "positive proof can never be obtained" without actually tracing them, and Rennell was confident that such "a circumstance [was] unlikely ever to happen to any Europeans, or their dependants." In absence of a "positive proof", or any prospect of acquiring it in foreseeable future, he sought to present the "strongest presumptive proof possible" in favour of his conclusion. This Rennell did by corroborating his observations of the Brahmaputra in Goalpara with the information derived from Du Halde's map of Tibet, and also on reports as were "described by the

[33] "In compiling their maps of India, both D'Anville and Rennell made use of every record they could find of the distance of one place from another, and give special weight to any distance that had been actually *measured* rather than *estimated."* ibid., p.10, original emphasis.

Assamers."[34] Referring to his native informants, Rennell noted that "They [also] informed me, that the Burrampooter has a very long course previous to its entering Assam; and that it comes from the NW through the Thibet mountains."[35]

Rennell's knowledge of Asom and of the Brahmaputra was thus produced through a blending of the scientific and the non-scientific, of the factual and the fabulous. In his practice of science, this line of demarcation often got blurred. Rennell himself was conscious of this demarcation, though he would not always be able to adhere to the conventions of collecting scientific information, conventions that were still in the process of making. In the assessment of the nineteenth or the twentieth century geographers, however, his work signified a clear break with the past. As such, his career was later divided into two distinct periods, "that of his earlier years of adventure as a sailor, an explorer or a surveyor, and that which covered more than fifty years of labourious and far-reaching study extending over every field of geographical activity."[36] This way, the earlier period was read as one of the geographer-in-the-making, the pre-history of a man-of-science when Rennell veered uncomfortably close to the non-scientific as an adventurer. Only the latter period of his career was then recognised as befitting that of a scientist and a geographer.

Rennell was a self-taught man in his trade, an adventurer in the high seas from Plymouth and a midshipman with "the sword, the saucepan and the book."[37] He landed in Madras as an eighteen-year-old teenager in 1760, and for the next eighteen years did not see his native land again. Drawing for him was initially a passion, and less a science. Before reaching India, during his voyages he made amateur plans of harbours and anchorages. Once in India, he was recruited on board the British royal ship *Norfolk* to take part in the war against the French in the blockade of Pondicherry, and there Rennell made a survey of the harbour of

[34] Jean-Baptiste du Halde (1674-1743), Parisian Jesuit Missionary to China. Rennell depended on his works in absence of other sources, but was apprehensive of its accuracy: "We have the history of the Lama's map in Du Halde, which is not altogether favourable to its character, especially in the parts towards the source of the Sanpoo and Ganges." Rennell, *Memoir*, p.300.
[35] Phillimore, *Historical Records*, Vol. I, p.79.
[36] Rodd Rennell, 'Major James Rennell. Born 3 December 1742, Died 20 March 1830', *The Geographical Journal*, Vol.75, No.4 (April 1930), p.289.
[37] ibid., p.290.

Trincomali. Likewise, being part of another British naval fleet he made plans of the harbour of Port Mathurin in the East Indies. In 1763 Rennell decided to resign his post in the Royal Navy and entered the services of the East India Company. As the Company was eager to have its province of Bengal carefully surveyed by the middle of 1760s, "through the recommendation of [his] friends Rennell found himself at the age of twenty-one appointed to carry out this important work."[38] As a surveyor in the service of the Company, "[H]is first attention was paid to the course of the Ganges."[39]

Within two years' of his survey work, he was also attracted to the vast range of mountains to the east of Hindustan, which he named the "Tartarian Mountains" and later came to be known as the Himalayas. The actual fieldwork covering almost the whole of Bengal took seven years, with more time having been spent in surveying what were thought to be the wild and less hospitable terrains. As such, it was noted that Rennell's field surveys, "*in the country east of the Brahmaputra, where both men and beast were savage, might almost be said to be carried out at the point of the bayonet.*"[40] In 1791, after completing a successful transition from being a sailor to a surveyor to a scientist when Rennell was conferred a royal medal, his *Bengal Atlas* was hailed as "executed with a degree of exactness that has not been paralleled by the most applauded geographers of this or any preceding age."[41]

The presumed break in Rennell's career or in the practice of science nevertheless was vague and ambiguous, as could be observed in J. D. Herbert's appraisal of Rennell published in a paper in 1830. Taking note of the recent geographical discoveries which seemed to confirm Rennell's calculations about the identity of the Brahmaputra and Tsangpo, the Deputy Surveyor General of India asserted that these new evidences "will add another to the many proofs we have of the sagacity of the father of our Indian Geography, Major Rennell, whose very *guesses*

[38] Rodd Rennell, 'Major James Rennell', p.292.
[39] ibid., pp.290-291.
[40] ibid., p.294.
[41] Joseph Banks, the President of the Royal Society, while awarding Rennell with the Copley Medal of the Society; cited in Ross, 'Major James Rennell', p.297.

appear better founded than the laboured erudition of other men."[42] Thus, Rennell was held by later-day geographers to be sagacious in the practice of his science as long as he gathered his information as a direct observer, maintaining a high standard of objectivity. In case of the Brahmaputra, however, he was found to be merely guessing or speculating, being unable to enter Asom in pursuit of the true course of the river to objectively determine its true course and contours.

Colonial Encounter with Asom: The Military Expeditions

> *For more than 30 years past, geographical research and surveying operations have accompanied our armies in the North West of India …but within a late period the Burmese war has recalled our attention to the very imperfectly known countries to the north-east.*
>
> -Surveyor General of India, 1830

The northeastern frontier of British India was termed as unknown even fifty years after Rennell conducted his first surveys of the region. The Surveyor General Blacker observed in 1824 just before Asom was to be annexed to the Empire, "[Assam's] interesting situation between Hindoostan and China, two names with which the civilized world has been long familiar, whilst itself remaining unknown, is a striking fact and leaves nothing to be wished, but the means and opportunity for exploring it."[43] One opportunity so eagerly anticipated already presented itself when the Asom's king invited British intervention in 1792 to suppress the popular *Moamoria* rebellion in eastern Asom, whereby the king was driven off from his capital and his kingdom. Deputing Captain Welsh to drive back the rebels and to restore the Raja, the Governor General observed,

> However extraordinary it may appear to people in Europe, …owing to the unremitting jealousy which the Chiefs of those countries have hitherto shown of the English, we know little more of the interior parts of Nipal and Assam than

[42] Phillimore, *Historical Records*, Vol. I, p.79. Emphasis added.

[43] Surveyor General Blacker to Lord Amherst, 22 April 1824, cited in the 'Preface' to N. Borooah, *David Scott in North-East India, 1802-1831: A Study in British Paternalism*, New Delhi: Munshilal Manoharlal, 1969.

> the interior parts of China, and I therefore think that no pains should be spared to avail ourselves of so favourable an opportunity to obtain good surveys and to acquire every information that may be possible.[44]

This is said to be the second attempt made by the British East India Company to collect information about Asom, with Thomas Wood, of the Bengal Engineers, employed as the surveyor to the expedition.[45] The first attempt was presumably made by Hugh Baillie, a private trader in Goalpara, later appointed as the "Superintendent of the Assam trade and Collector of Rangamati and Goalpara," when the government in Bengal asked him to "report on the resources of Assam, and the customs of the inhabitants." But Baillie failed to produce any "systematic survey of Assam" as he had to close down his Goalpara factory and office in early 1790 due to "dissensions and strifes then raging in Assam."[46] The other prominent British private trader of the time in Goalpara engaged in trade with Asom, Daniel Rausch "never appear[ed] to have contributed any information of a geographical character, though he probably knew more about the Assamese of that time then anyone else."[47]

Joining Welsh's detachment at Guwahati in December 1792, Wood "commenced survey from the point where Rennell left off near Goalpara in 1765."[48] The Brahmaputra and its surroundings were the immediate subjects of his survey. Hoping to send the Bengal government the survey upstream of the "thirty or forty miles of more of this wonderful river," Wood reached Jorhat and took part in the battles with the rebels there. Proceeding with the British force towards Rangpur, the capital, the surveyor reported,

> I am now going up that river [the Brahmaputra] with the fleet as near to Rungpore as we will have water, but am disappointed in surveying it. The banks are perpendicular on each side, and covered with an impenetrable jungle. So

[44] J. J. Johnstone, *Captain Welsh's Expedition to Assam in 1792, 1793 and 1794*, Calcutta, 1877, p.10.
[45] S. K. Bhuyan, 'Preface to the First Edition', Francis Hamilton, *An Account of Assam, First Compiled in 1807-14*, ed. S. K. Bhuyan, Guwahati: Department of Historical and Antiquarian Studies, 1987 (1940), p.xi.
[46] ibid., p.xi.
[47] Phillimore, *Historical Records*, Vol. I, p.80.
[48] ibid., pp. 398-399.

> soon however as I get up to Rungpore I mean to survey down the road we first marched up, at the commencement of which I left a mark… I shall be able without any great trouble to lay down the situation of the Capital.

The expedition now was called off, having "advanced many hundred of miles into an unknown country," and its objective of restoring the country to the Ahom king being completed, making thereby the latter a protectorate and tributary of the British.[49] By the time the expedition was called off in April 1794, Wood finished his survey of the Brahmaputra as far as the mouth of the River Dikhow in eastern Asom. Wood brought his works in the Valley back to Calcutta and in the following months, engaged himself in drawing up his maps. Thus the second attempt by the East India Company to "collect information about Assam" came to a close.

The next attempt by the British of this kind in the Brahmaputra Valley was to come thirty years later, piggybacking yet another military campaign. This time the adversary was the Burmese, and the ensuing engagement known as the First Anglo-Burmese War. Meanwhile, attached to the British embassy to the court of Ava in 1895, Wood subsequently "made an excellent survey of the Irrawaddy River."[50] This map of the Irrawaddy was considered to be "a careful piece of professional work," which was proven to be of "the utmost value to the [British] army in the Burmese War, 1824-6," and also during the war of 1852-3 with the Burmese, when copies of Wood's map was "specially lithographed and eagerly sought for."[51]

A good inventory of geographical knowledge of the newly acquired territories of the colony, and with it the knowledge of the various rivers with a view to utilize them was evident in the early days of colonial rule. In 1765 the Company employed a surveyor to map the course of the 'Cossimbazar' as well as the 'Mohanaddee' Rivers in the newly acquired "provinces of Chittagong, Burdwan and Midnapore". Lewis De Gloss, the surveyor, made "exact surveys" in parts of Burdwan and Midnapore, "[B]ut most of his time was spent on surveys of the

[49] Johnstone, *Captain Welsh's Expedition*, pp.39-45.
[50] Phillimore, *Historical Records*, Vol. I, p.8.
[51] ibid., p.85.

rivers and embankments, and on schemes for controlling the floods," a work found to be so important as to bring in more surveyors to assist De Gloss in this purpose.[52] Surveys and estimates were important tools and in demand for controlling the rivers through "continuous embankments". These "great rivers of Bengal" which bring down "immense floods" are described as sources of "perennial anxiety to this very day," often destroying valuable agricultural lands and its produce, an important component of colonial revenue. In 1816-17, the *bunds* along the Ganges in Rajshahi district of Bengal were surveyed, while 1824-25 the embankments on the Jessore River in the same province was put to extensive survey and mapping.[53]

George Everest, another British surveyor in the service of the Company who would later earn his fame for the Great Trigonometric Surveys of the Subcontinent, was appointed in 1817 to clear the Icchamati and the Matabhanga Rivers off "trees, sunken boats, and other obstructions to navigation." This measure was necessitated by a petition from "the merchants of Calcutta" who complained that this 'evil', i.e. "the obstructions had become so many and dangerous as to cause the wreck of innumerable boats, and to entail heavy losses."[54] Though Everest's efforts failed to provide a "permanent cure," this work of "great improvement by clearing the channel of obstructions" was achieved two years later.

Proposals were made to the Bengal government to monitor the changes in the main channels of the rivers in the province so as to facilitate the easy and safe passage of boats through them, and for that purpose their periodic and regular surveys seemed essential to the government. The 'Superintendent and Collector' of the Matabhnaga River was deputed to produce such a series of periodic maps of the navigable channels of the river. In 1823 when the need to search for a permanent channel connecting the Hooghly with the Ganges through the *Sunderbans* became crucial for maintaining a smooth commercial navigation between Calcutta and Upper India that would be least obstructive, the

[52] Phillimore, *Historical Records*, Vol. I, pp.21-22.
[53] Phillimore, *Historical Records*, Vol. II, p.15.
[54] ibid., p.15.

government in Bengal found these maps very instructive of the character of the rivers, even demonstrating certain fixed laws. Thus it was observed,

> The maps annually prepared by Mr. May furnish a highly interesting view of the working of the river and…may enable us to ascertain the limits to which they extend [during floods and high tides, and also over time]. For, great and apparently capricious as is the destruction and creation of land which occurs…each year, it seems that the progress of the river is regulated by fixed laws, and that…after certain periods it returns over the space it has already traversed, so that the bounds of it's encroachment on either bank may be traced.[55]

Likewise, when "the old question of an artificial cut between the Ganges and one of its outlets near Jalangi." was reopened in 1819 as a means of carrying out 'improvement' of the internal navigation of Bengal, it was held that "Nothing can be definitely settled without a careful survey of the various streams which intersect the delta of the Ganges."[56]

The perceived threat from the Burmese kingdom bordering their territorial possessions on its north-east frontier in the meantime compelled the British to collect reliable and more detailed information than hitherto achieved, so as to protect it from future incursions by the kingdom of Ava in early nineteenth century. The control of Asom and the river-route of the Brahmaputra appeared to be crucial for the defense against Burmese aggressions and their allies, the French.[57] From the early years of the nineteenth century, the territory between the British and the Burmese empires emerged as strategically important to the growing inter-imperialist rivalry. The threat seemed to the British to be immediate and real, since by 1822, "the Burmese having obtained complete mastery of Assam and a person of that nation having been appointed the

[55] Phillimore, ed. *Historical Records*, Vol. II, p. 15.
[56] ibid., p.15.
[57] "To the Company the strategic north-east frontier of Bengal meant the whole of the hill ranges surrounding the Assam valley, for the security of its Bengal territories rested not only on the peaceable demeanour of the peoples of the immediate frontier hills, but also of the independent regions such as Cachar, Assam, Manipur and Burma beyond them. *Any power which might advance along the Brahmaputra into central and eastern Bengal was a potential threat*." Borooah, *David Scott in North-East India*, p.63.

supreme authority, the country may now be considered as a province of the Burman empire."[58] David Scott, in charge of the North East Frontier and based at Goalpara wrote to the British government in Fort William, and stressed on

> [T]he gravity of the Burmese menace by pointing out that the whole of Dacca, Mymensing, Rangpur, and Natore districts now lay at the mercy of the Burmese. *They now commanded the river routes into eastern Bengal and it would be as difficult to fight with them on water as was to fight with the Pindaris on land in South India.* Their occupation of the Brahmaputra valley had changed the whole complexion of the Burmese problem. It would be a great miscalculation to judge the capacities of the Burmese in control of the Brahmaputra simply by the slow movements of their troops in the mountainous tract bordering on Chittagong and Tipperah. *From the Brahmaputra valley they could easily sail down and sack Dacca and the adjoining districts, and against such a naval attack the superior discipline of the British troops would not be of much use.*[59]

This perceived Burmese threat – particularly through the Brahmaputra – resulted in the British government of Bengal in taking military measures in its eastern frontier. "The whole frontier was placed under the special command of a Lieutenant-Colonel assisted by a Brigadier-Major. The particular threat from the Burmese war boats, was also tackled by the despatch of oared boats of the longest size, armed with a twelve-pounder carronade in the bows and a party of five *golandazes* (matchlockmen) per boat."[60] Lt. Davidson, for example, who commanded at Goalpara, "found ample cause to fear [the Burmese] forces", and "from his own experience knew the effectiveness of their swift war-boats each carrying anything up to 150 armed men."[61]

Scott anticipated three possible routes for a future Burmese invasion of Bengal: the first from Manipur through Tripura and Cachar; the second through Cachar and Jaintia, and the third through Asom by the Brahmaputra. From the first route he expected little danger, since it ran through forests considered to be almost impenetrable at any season of the year, and he was confident that it could be

[58] David Scott to Prinsep, cited in Borooah, *David Scott in North-East India*, p.72.
[59] ibid., emphasis added.
[60] ibid., p.74.
[61] ibid., p.73.

defended by the British allies in Tripura with the minimum of British military support. The second and the third routes, he said, needed immediate attention. To the military commander Lt. Col. MacMorine, he wrote of the third route down the Brahmaputra, " I must confess that after mature reflection on this subject during the course of several years I am unable to device any effectual and readily practicable means of meeting it other than that of expelling the Burmese from the upper part of the river."[62] That was because the Burmese war canoes with a speed of 8 to 10 miles an hour, once they had broken through the Company's flotilla at Goalpara, could not possibly be stopped by British gunboats with a speed of only 4 to 5 miles an hour. When in February the Government ordered an advance from Goalpara up the Brahmaputra Valley, they were only putting into practice the measures so often urged by Scott to meet the greatest Burmese threat: the control of the Brahmaputra river-route was the most effective guarantee against an imminent Burmese assault on Bengal. The subsequent military operations, as Scott had foreseen, was to stall any possible Burmese thrust down the Brahmaputra.[63]

A British confrontation with the Burmese seemed inevitable, and indeed it materialised as the First Anglo-Burmese War in 1824. It was also an opportunity, after the British military campaign of 1792, that presented itself to the East India Company for gathering knowledge of their territories east of Bengal. Revenue Surveyors from different parts of the British Empire were entrusted with the duty of surveying this *terra incognita*. They were placed under the superintendence of the military command, and were to follow the several divisions of the army, so as to "derive advantage to the utmost practicable extent of the opportunities so suddenly and unexpectedly opened of pushing [our] investigations beyond those barriers which the well or ill-founded jealousy of [our] Eastern neighbours had hitherto opposed to us, and which we had till then no immediate hope of surmounting."[64] Wilcox himself was placed under Captain Bedford as an assistant in October 1824 and was given the task of surveying 'Asam'.

[62] Scott to MacMorine, 6 February, 1824, Cited in Borooah, *David Scott in North-East India*, p.72.
[63] ibid., p.82.
[64] ibid., p.315.

The surveyors that accompanied or followed the military columns into different fronts of the war had most of the time to work from their boats in rivers and creeks, often bound by high banks and thick forests that made it difficult for them to take accurate measurements. However, the country being so inadequately known by the British, or for that matter – any European power till then, that any information whatsoever "was of utmost interest, even though not of great accuracy."[65] But the objectiveness of the geographical information and sketches, i.e., those that were collected through the direct observation of the surveyor, were asked to be separated from the ones that were received through a native informant.[66]

It was expected by the survey authorities that the surveyors thus attached to the British troops would accomplish more than mere road or route-surveys, as it insisted on "laying down" the features of the country, hills and plains, rivers and forests as they were visible from the "line of march" of the survey. Of the course of the rivers in Asom, instructions were issued by the Survey of India that the surveyors would have to "be careful in ascertaining by actual survey to the greatest practical distance, & *you will endeavour to supply from information the general direction of the streams beyond the limits of your survey, the names of the towns and villages near which they flow, the situation of their sources, and their junction with other streams…The section of rivers of any magnitude should be taken, showing the depth of water in the dry season & during the floods*."[67] Captains Wilcox and Bedford carried out such surveys between 1824 and 1828 in the Brahmaputra Valley, while the war also opened up the possibility of cartographic works in the north-eastern frontier along Burma as well as towards Tibet to the north.

[65] R. H. Phillimore, ed. *Historical Records of the Survey of India*, Vol. III, 1815 to 1830, p.198.
[66] "Be very particular…in your maps, sketches and notes, in distinguishing between what you have *actually observed yourself*, and what you have inserted from information only, and always state the name and condition of the persons from whom you gained information…," instructed the Surveyor General to Surveyor Wroughton in Arracan during the Anglo-Burmese War of 1824-26. ibid., p.199, original emphasis.
[67] Phillimore, *Historical Records of the Survey of India*, Vol. III, p.198, emphasis added.

The major task for Wilcox was to collect "Geographical information properly so called" of the northeastern frontier of British Bengal. The Surveyor General briefed him, "You will take measures for the attainment of as much geographical knowledge on or beyond… the eastern frontier as the present or expected movements may admit."[68] Wilcox noted that the earlier works – both the published narratives of journeys to that region by individuals, and scattered information in various journals – were hardly adequate to provide the precise and focused information that was sought to be necessary.[69] Wilcox considered himself competent enough to undertake such a task. As he noted,

> Having been *on the spot* from the beginning, at first an interested observer, and latterly employed in exploring myself much of the *Terra incognita* of that quarter, I consider that I ought to be able to give a connected view of the progressive steps made, as well as to supply many particulars necessary to the full comprehension of the subject, not yet generally adverted to.[70]

Arriving at the frontier town of Goalpara in early January of 1825 while the Burmese forces were retreating further eastwards, the survey party made "anxious enquiries respecting the source of the Brahmaputra" from the natives. The commonly held view among them was that the river emanated from the east beyond the boundaries of the kingdom of Asom. "We are told of a cataract, which imagination perhaps, rather than report, founded on respectable information, long continued to magnify into a splendid fall of the whole river from the bordering ridge of mountains." In addition to the information about its source, the native informants were asked about the distance and course of the navigable part of the Brahmaputra, "who knew well that the boats of Bengal could not pass more than one day's journey beyond *Sadiya*".[71] Wilcox also procured an indigenous map in Goalpara "drawn in [the native's] own incorrect style" which showed the sites of the tributaries of the Brahmaputra, important villages and

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[68] Survey of India Records, Dehra Dun, No.205, Bengal Military Consultations, 16 February 1824, cited in Phillimore, ed. *Historical Records of the Survey of India*, Vol. III, p.52.
[69] Lieutenant R. Wilcox, 'Memoir of a Survey of Assam and the Neighbouring Countries, Executed in 1825-6-7-8', *Asiatic Researches*, *Vol. XVII*, pp.314-315.
[89] ibid., p.315, emphasis added.
[71] Wilcox, 'Memoir of a Survey of Assam', pp.316.

administrative divisions, etc. They were informed by the natives of the Brahmakund that the source of the Brahmaputra was situated in the east.

Shortly afterwards, the survey of the Brahmaputra up to Sadiya and a short distance beyond it was completed by Lieutenant Burlton with the help of nothing more than a simple surveying compass. Facing rapid currents, shallow waters rocks on the surface of the river, he had to abandon the expedition not much distance upstream from the station of Sadiya. "From the narrowness of the water he imagined that the source of the Brahmaputra must be there, as it seemed very improbable such a small body of water could run the distance it is represented or supposed to do."[72] The perceived "narrowness of the water" upstream from Sadiya was due to the fact that the Lohit was not identical with the Brahmaputra, but the former was only a tributary of the latter, the surveyors concluded. The Tsangpo of Tibet was held to be the "Buri Dihong" in Asom. Wilcox thus notes,

> Had Lieutenant Burlton added an account of the discharge of the river, according to the sections he took below the *Buri Dihong* mouth, and near Sadiya, this idea of the character of the river [narrow and shallow, and thus the impossibility of the Brahmaputra being identical with the Sanpo] could never have been formed. For the quantity of water discharged per second in the former place, was found to be 86,727 cubic feet per second, and of the sacred *Brahmaputra*, or eastern branch passing Sadiya, 32,413 feet in the same time.[73]

Since there was hardly any impression in Lt. Burlton's mind that the Dihong could in fact be the continuation of the Tsangpo, and not the Lohit (which was thought to be synonymous to the Brahmaputra), "attention was not yet directed to the navigation of the Dihong."[74] Capt. Bedford and Lt. Wilcox, who by then reached the station of Bishwanath, were directed to survey the Buri Lohit (or the Old Lohit), the older branch of the river, and to resurvey the Brahmaputra, respectively. "Captain Bedford afterwards continued his route towards Sadiya, making a more accurate survey than Lieutenant Burlton had the means of doing;

[72] ibid., p.318.
[73] ibid., pp.318-319.
[74] ibid., pp.319.

and before the expiration of the month of June, he had surveyed not only the whole distance on the great river from *Bishanath* to *Tengapani*, but having accompanied Captain NEUFVILLE on the expedition against the *Singpho* chiefs, he also added a hasty survey of the *Noa Dihing.*"[75]

Wilcox himself meanwhile joined the British advances against the "Singphos", who were reported to be making "daring and successful incursion" into the neighbouring areas of Rangpur in eastern Asom. For Wilcox, the process of scientific observation was a part of military marches into the less-known territories, even though not without improvisations to, and compromises in the rigorous standards of the professional surveyor. Proceeding up the Disang[76] River, he found the banks to be "clothed with an impenetrable tree forest", and hence "the distances I was compelled to estimate in time, guided by the experience I had of the progress of my boat at those places where it was practicable to use my perambulator."[77] Meeting with the "rapids" in the river which their Bengal-made boats could not surmount, and still five miles further from their destination Borhath, the party of the 46th Regiment had to be led by "one of the Asam guides", and "after a most laborious march through jungle, where no trace of a path was to be found", Wilcox and his party reached their destination.[78] Similar kinds of hurdles were faced by Wilcox as he was engaged in his next mission, the survey of the Dikhow River. Though "made under more favourable circumstances for arriving at accuracy, as the distance by the bund road both to Kowarpara and to Ghergong was surveyed, and hills determined in position from this base served to correct the remaining portion, but here as in the Disang, after arriving within a certain distance of the hills, I found it impossible to proceed: it is similar in character to the before named rivers."[79] Difficulties of the terrain were encountered by the other survey parties too, which were simultaneously engaged in the survey of the region. Lieutenant

[75] ibid., p.321.
[76] Disang, one of the main tributaries of the Brahmaputra originating in the Patkai Range of the present Nagaland.
[77] ibid., p.321.
[78] ibid., pp.321-22.
[79] ibid., p.324.

Jone's Journal illustrates his detachment's march from Rangpur to Borhath, which

> chiefly describe the embarrassments of a party moving on bad roads through a jungly [sic] and swampy tract intersected by swollen rivers. For the first fourteen miles, they encountered swamps, jheels, and tree jungle; then, after coming on a good broad road, and proceeding one mile along it, they found a fine stone bridge, of three arches, in good repair, over the *Tezakhana* nullah. The broad road continued (occasionally broken) through a more open country with the Naga hills on the right at no great distance. The Chipera river was crossed by the help of a party of Nagas, who are very expert in felling timber, and a raft was constructed for passing the baggage over the Tsokak, which could not be forded by elephants.[80]

When Wilcox finished his survey works in the upper reaches of the Brahmaputra in eastern Asom by the end of 1828, he was asked to make a survey of the river on his way back of its course through the plains of Bengal till where it flowed along the city of Dacca. It was felt by the government's survey establishment that the earlier surveys of the channel had become so outdated that they were hardly of any practical use due to the subsequent changes in the river, making the earlier cartographic studies redundant.[81] James Scott too asked Lieutenant Wilcox to prepare a chart of the Brahmaputra from Goalpara to Jamalpur after receiving a request to this effect from the 'Burhampooter steam vessel' in 1828. This could be "highly useful", even though "no great degree of accuracy is required, and that I conceive that all that is necessary might be done as you proceed down the river in a boat – a general idea of the principal existing channels as compared with the state of the river exhibited in Major Rennell's map being all that is wanted", directed Scott.[82] While returning from Asom by the Brahmaputra between February and June 1828, Wilcox took up a hasty survey of

[80] ibid., p.324.
[81] The Surveyor General noted, "such great changes have taken place since the compilation of Major Rennell's map, that…it affords little or no accurate information of this part of Bengal." Survey of India Records, Dehra Dun, No. 265, 13 October 1830, cited in Phillimore, *Historical Records*, Vol. II, p.16.
[82] David Scott, Commissioner of Assam, to Lieutenant Wilcox, Revenue Surveyor, No.35, 11 April 1828, Series I: Letters Received from Government, Vol.6, 1828, pp.219-227, ASA.

this lower part of the river from Goalpara to Jamalpur in Bengal, and reported, "I found it advisable to adhere to one bank [of the river]…and I soon perceived that, instead of merely correcting Rennell's map for the alterations that have taken place, I must construct one anew; so little resemblance is now to be recognised with the former state of things."[83] The surveyor observed that many places and landmarks such as village sites that were recognised in earlier cartographic representations had vanished, or had been moved to other places. Moreover, perceptible and striking changes in the landscape had been caused by the shifting of the river channels.[84] A more comprehensive survey of this part of the river was authorised in 1830 under the guidance of Wilcox, and with the help of assistant surveyors.

By 1814 the "established procedure" of dispatching copies of surveys and other cartographic materials to London were in place. Unlike the eighteenth century administrators, adherence to "strict accuracy" was now demanded in early nineteenth century by the Court of Directors from their surveyors in India wherever possible, as in 1827 when the *Atlas of India* was in the process of preparation.[85] Invention of new 'arts' or techniques such as lithography and projections made more accurate and detailed inscription and engraving possible, also making the circulation of these works more convenient and common. In case of the Brahmaputra Valley, the survey works started by Wood were perfected and filled-in with details by later-day surveyors and with specialised surveys in the second half of the nineteenth century. These works built upon the already accumulated cartographic knowledge, but now with a much greater emphasis on the experience and the presence of the professional surveyor. Local sources in such endeavours were still in use as was in the times of Rennell –whether in the form of the written accounts or the testimonies of indigenous informants – but

[83] Survey of India Records, Dehra Dun, No.231, Calcutta, 23 June 1828, cited in ibid., p.16.

[84] Wilcox noted, describing such changes in the land, "The names even of some of the former villages have been forgotten, and the sites of many removed. Bugawa is supposed to have been where the bed of the river now is …Below Burgoowa scarce any resemblance can be traced to the banks of the Brahmapootra in the upper part of its course; instead of he long dreary tracts of impenetrable jungle, a fine open and well cultivated country extends". Phillimore, *Historical Records*, Vol. II, p.16.

[85] The Court of Directors noted that many of the sketches, maps, field-books and other geographical outputs that were sent out to London were lacking in accuracy, and some were very "incorrectly copied". Phillimore, ed. *Historical Records*, Vol. III, p.292.

such sources were now increasingly found to be unreliable and unsuitable for the new demands that were made of the cartographic representations. The use of cadastral and revenue survey techniques produced from direct observations and standardized measurements by professional government surveyors became the norm in the nineteenth century Asom, as opposed to the earlier "road surveys" of Woods and Wilcox. For regions such as Tibet which still remained to be subjected to such detailed and evolved methods of cartography, however, older methods were continued to be employed even till the late nineteenth century. The endeavours to "lift the veil" from Tibet that kept it relatively unknown to Europe through itinerant native surveyors is a case in point, which was also connected to the efforts of the colonial government to determine the true source and course of the River Brahmaputra, termed among the very few geographical "mysteries" yet to be unraveled.

The Mysteries of the Brahmaputra

Endeavours to collect new and accurate information of the region beyond the northern frontiers of British India through the "Trans-Himalayan Explorations" in the second half of the nineteenth century was justified by the probability of future commercial expansion, geographical knowledge, and of Civilization in general. For the role of the *Royal Geographical Society of London* in encouraging such explorations to Tibet, Central Asia and Central Africa, there was "a tangible purpose", it was observed by a member of the Society, Henry Rawlinson. Explorations resulting in "geographical discovery", it was thought, "led to the spread of civilization and general intelligence, and even to material advantage in the advancement of commerce and trade." At the same time, Rawlinson observed, "the Pundit's travels in Tibet had paved the way for the extension of our trade in that direction, and might hereafter prove of very great importance."[86] The 'Pundits' who spied Tibet were to become an important medium for the expansion of imperial knowledge. It was expected by the

[86] T. G. Montgomerie, 'Report on the Trans-Himalayan Explorations, in Connexion with the Great Trigonometrical Survey of India, during 1865-7: Route-Survey made by Pundit -, from Nepal to Lhasa, and thence through the Upper Valley of the Brahmaputra to Its Source', *Proceedings of the Royal Geographical Society of London*, Vol.12, No.3 (1867-1868), pp.169-170.

Geographical Society that "Under the auspices of British geographers both trades [of tea and wool] might be improved." This instance only demonstrated, the argument went, the "practical advantages attending geographical exploration, and that it was not pursued in a mere dilettante spirit or for a mere visionary object. It [the Pundits' journey] would in reality prove of very great value in improving the social state of the East."[87]

Mysteries shrouding the Brahmaputra puzzled and intrigued geographers, cartographers and surveyors, mysteries which they considered to be amongst the last of all the geographical riddles of the yet unknown world, the *terra incognita* of geography. The tracing of the source and the true course of the Brahmaputra, its 'identity' with the Tsangpo, the mythical great falls in the river as it comes down from the Tibetan plateau to Asom's plains, and the search for the 'cannibals' who were speculated in Europe to be living by the river in the most inaccessible and still scientifically untraced parts of its course, were regarded as some of the last puzzles in frontiers of the unknown, the last of the unsolved geographic mysteries.

These were the "great geographical puzzles", to solve which the colonial officials and men of science in particular engaged themselves for one and a half century. This process started in 1760s with James Rennell's river-surveys, and was thought to be satisfactorily resolved during the so-called Abor Expedition of 1911-14 in the northeastern frontier of the British Indian Empire. This was also the period during which the Brahmaputra itself was being constituted in the way it is known today, both in scientific representations as well as in popular imagination, inscribed as one single river and with a well-defined course, and an "official" source.[88]

As early as in 1792, Thomas Wood, the surveyor who accompanied Captain Welsh's campaign to Asom was aware of this "great puzzle", and expressed his desire of "tracing the Burrampooter." He carried forward the survey work

[87] ibid., p.170.
[88] Mark Shand, *River Dog: A Journey Down the Brahmaputra*, London: Little, Brown, 2002.

towards the eastern reaches of the river from Goalpara, where Rennell left off his surveys in 1765. James Rennell was aware of and engaged with this puzzle while he was surveying the province of Bengal. However, as he noted afterwards, "I find it totally impossible to obtain any information from the natives to be depended upon."[89] Wood, expecting to unravel the mystery, noted, "I had flattered myself next season to have had it in my power *to clear up Major Rennell's doubts relative to the source of the Burrampooter*."[90] But once the military campaign was called off in 1794, the region now could not be approached from the Asom side. It was only after its annexation in the second decade of the nineteenth century, that fresh attempts were made by the British towards uncovering the mystery of the Brahmaputra.

Phillimore notes that both the Surveyor General of India and the Political Agent in charge of Asom were anxious to "solve the riddle of the Brahmautra [sic]," and in September 1825 asked the services of Wilcox to be deputed to the "special duty" to trace the "sources of the great body of water which the Brahmpootur pours through Bengal."[91] Wilcox was instructed by Scott to commence his work by first tracing the Subansiri River, a major north bank tributary of the Brahmaputra coming down through the foothills of the eastern Himalayan mountains, and joining the latter on the middle reaches of its course in Asom plains. The surveyor responded by saying that "my first attempt shall be made on the Sooburnu Shree, falling into the Boree Lohit in longitude 94^{0}13… a successful trip up it must tend to throw light on the connexion of the great Thibet river with the waters of the plains of Assam."[92] This work, and those of the other surveyors and travellers over the first decade of colonial occupation of its North Eastern

[89] Phillimore, *Historical Records*, Vol. I, pp.398-399.
[90] Rodd Rennell, 'Major James Rennell: Born 3 December 1742, Died 20 March 1830', *The Geographical Journal*, Vol.75, No.4 (April 1930), p.289.
[91] Survey of India Records, Dehra Dun, No 204, 27 September 1825, cited in Phillimore, *Historical Records*, Vol. II, pp.55-56. Wilcox too states their purpose thus, "The interest too excited by the question of the identity of the *Sanpo* and *Brahmaputra*, evidenced by the notice taken of the subject in Europe, seems to call for the execution of such a task…Captain Bedford was instructed to consider the Brahmaputra as the chief object of attention. …He was to endeavour to unravel the mystery in which was enveloped each notice or tradition respecting its fountain head by proceeding up its streams as far as the influence of the neighbouring force, or the safeguard of a detached escort might permit." Lieutenant R. Wilcox, 'Memoir of a Survey of Assam and the Neighbouring Countries, Executed in 1825-6-7-8', *Asiatic Researches,* Vol. XVII, pp.315-316.
[92] Survey of India Records, Dehra Dun, No.214, 26 October 1825, cited in Phillimore, *Historical Records*, Vol. II, pp.55-56.

Frontier, it was now thought, "had shown conclusively that the Luhit branch of the Brahmaputra that came from the Brahmakund was not the main river, but that the great volume of water came down from the Dihang. This was, of course, no proof that the Dihang was the outlet of the Tsangpo, [so] Wilcox's next task was to test the widely held theory that the river of Thibet discharged its waters through the Irrawaddy."[93] Hodson, the then Surveyor General of India, gave his own opinion on the matter which generated a considerable interest back home in Britain,

> A great interest is taken about the Burrampooter and much nonsense issues from the press… Mr. Klaproth, a continental coxcomb, has written that the Sampoo is the Irrawuddi, which can hardly be. Sampoo means a river, but the Guroo Sampoo of Du Halde issues, it is supposed, from the high land near the Mansarovur Lake; I say 'suppose', for I have no evidence to that purpose, but think it likely to be the case. If so, its length…to the north east of Ava would make it a very large river. Rennell thought it was the Burrampooter, but, supposing it to come from so far west as the Munsarovar Lake, it would even then be almost too large a stream to be one of the main feeders of the river… Turner, in the Embassy to Teshoo Sumboo[in Tibet] saw a river he calls the Burrampooter or Erechoomboo … which he says goes into Assam.[94]

The Irrawadi flowing through Burma was also proposed as the most probable outlet for the Tsangpo.[95] But Turner, attached to the British embassy to Lhasa at the end of eighteenth century, claimed to know "that the two rivers [The Tsanpo of Tibet and the Brahmaputra of Assam] were the same". He wrote, "[T]he Berhampooter…penetrates the frontier mountains that divide Tibet from Assam.

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[93] ibid., p.57.

[94] Survey of India Records, Dehra Dun, No 220, 17 November 1826, cited in Phillimore, *Historical Records*, Vol. II, p.57.

[95] Michell in his report on the north-eastern frontier of Bengal, wrote about the probable connection between the Tsangpo and Irrawadi rivers, "If we believe the native surveyor, we have hitherto been wrong about the supposed course of the Sanpo, as it lies more than a degree further to the north than has been supposed, thus leaving 10,000 square miles of watershed to the Dihong or Subansiri river. If this drainage is assigned to the Subansiri river, then the Dihong and Sanpo must be the same river. But there seem very strong reasons to dispute such an assignment, for then we have the fact that if this watershed is added to the watershed of the Subansiri the result is 18000 cubic feet per second coming from each square mile, which is an extraordinary state of affairs, whereas, if the watershed is assigned to the Dihong, we have the very natural result that the Dihong does not break through the Himalayan chain from the north and the Sanpo and Irrawady are the same river." Michell, *Report*, pp.17-18.

In this latter region it receives a copious supply…before it rushes to the notice of Europeans below Rangamatti, on the borders of Bengal."[96] Wilcox and Bedford's surveys were compiled in the form of maps in 1828, where the sources of the "eastern branches of the Brahmaputra" were shown, and "the Tsangpo was shewn in dotted lines as falling into the Dihang," but as Phillimore observes, "its big loop to the north-west round Namcha Barwa[97] was unknown before 1912." Wilcox, like Rennell and many others anticipated the connection between the Tsangpo and the Brahmaputra, but it was not considered to be scientifically proved till the military campaign against the 'Abors' in 1911, i.e., through direct and objective observation by surveyors attached to the campaign.

In Search of the Origin of the Brahmaputra: Trans-Himalayan Expeditions

> *A European, even if disguised, attracts attention when travelling among Asiatics, and his presence, if detected, is now-a-days often apt to lead to outrage. The difficulty of redressing such outrages, and various other causes, have, for the present, all but put a stop to exploration by Europeans. On the other hand, Asiatics, the subjects of the British Government, are known to travel freely without molestation in countries far beyond the British frontier*.[98]

On the 23 March 1868, a paper was read before the Royal Geographical Society of London by Captain T G Montgomerie, where he proposed to talk about the just concluded Trans-Himalayan Explorations from Nepal to Lhasa, and "thence through the upper valley of the Brahmaputra to its source." The river in Tibet is identified here as the Brahmaputra, and the plateau through which it flows as the "upper valley", the lower one being the plains of Asom. This exploration which the paper proceeded to present then was about searching and locating of the source of the Brahmaputra in Tibet, already identified as *one* river. The information thus collected by the native surveyors was found by the president of the Society to be "of great importance to geographers."[99] Though there had been

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[96] Samuel Turner, *An Account of an Embassy to the Court of the Teshoo Lama in Tibet*, London: Samuel Turner, 1800, p.298.
[97] A high peak at the extreme east of the eastern Himalayan range.
[98] T. G. Montgomerie, 'Report on the Trans-Himalayan Explorations, in Connexion with the Great Trigonometrical Survey of India, during 1865-7: Route-Survey made by Pundit -, from Nepal to Lhasa, and thence through the Upper Valley of the Brahmaputra to Its Source', *Proceedings of the Royal Geographical Society of* London, Vol.12, No.3 (1867-1868), p.146.
[99] ibid., p.164.

numerous visits by Europeans to Tibet during the two or three previous centuries, missionaries included, "no account of its real geographical features…had ever been brought before the Society prior to the present journey of the Pundit," he noted. Of the "course of the great Brahmaputra River which flowed through the central portion of the country [of Tibet]", the president further noted, "[A]lthough that river was at so short a distance from the north of our Indian possessions, its course in passing through the Himalayan chain into Assam was not yet defined," and "this" he considered "was one of the great geographical problems which remained to be solved."[100]

The efforts towards resolving this mystery by sending spies and informants, however, started much earlier. A mendicant, Paramanand Acharya was a traveler who got favourable assistance from the British government in Asom in his mission of 1847. Regarding his journey, Francis Jenkins, the Commissioner of Assam wrote to Captain Vetch, the political agent for Upper Assam,

> Should Permanund be able to penetrate to Lhasa, I have begged him to endeavour to return by the valley of the Sanpoo, which may be the stream in continuation of that River, and in his opinion it is not Dihing but another branch of the Burhampootur from which also flows the Dibong separating within the hills to be united again below Sudiya. I would beg you to give advice to the abors on the Debong in case Permanund should be able to return by either of those rivers, and to tell them they will be rewarded for any assistance they may afford him."[101]

One of the objectives thus was to make "Permanund to follow down that River to this province [Assam] that this great geographical desideratum may be set at."[102] Not much, however, is known about the outcome of this expedition. But in early 1860s, a proposal to send natives to Tibet in disguise for carrying out survey works was placed before the colonial government. The proposal having

[100] ibid., p.165
[101] F. Jenkins, Commissioner of Assam, to Captain H. Vetch, Political Agent of Upper Assam, Dibrooghur, No.292, 21 August 1847, Series XI, Vol.8, April-November 1847, ASA.
[102] F. Jenkins, Commissioner of Assam, to Captain Cunningham, Proceeding on a Special Mission to Thibet, No. 294, 21 August 1847, Series XI, Vol.8, April-November 1847, ASA.

been accepted, the Superintendent of the Great Trigonometrical Survey of India engaged two persons for the purpose.[103] Of them, Nain Singh was a government schoolmaster (or *pundit*) in the village of Milum, in the Johar district of Kumaon, and the other, his cousin Manee Singh was a "Putwarie, or chief native official of Johar." Their affinity to and acquaintance of Tibetan ways of life and culture, along with physical proximity were important factors determining their selection, as the two 'Pundits' were thought to belong to "a peculiar set of people, generally called Bhootiahs (quite different from the Bhootiahs, or Bhootanese, of Bhootan), who inhabit the highest accessible parts of the different valleys in Kumaon and Garhwal."[104]

It was reasoned that the aforesaid Bhootiahs could make the best of explorers in Tibet because of their knowledge of the Tibetan language, and also because their easy entry into Tibet. Manee Singh was found to be "far superior to Nain Singh in position, wealth, and intellect, and might have done well", but his 'superior talent' could not be fully materialised by the British as "unfortunately he was too well off in his own country to take to the rough life of exploration." Once the "promising recruits" were secured, Nain Sing and Manee Singh were sent to the headquarters of the Trigonometrical Survey for training. When Capt. Montgomerie took over the charge of training them for the forthcoming 'Trans-Himalayan Exploration' of the two natives, he found the trainees to be "very intelligent," who "rapidly learnt the use of the sextant, compass, & c., and before

[103] To the question "What is a Pundit", the following was offered as an answer, "A Pundit was not a very mysterious personage. The word simply meant one who had *read* the 'shasters' or the sacred books of the Hindoos. A Pundit was simply then an educated Hindoo. He would be very valuable for Buddhist countries, but he would be utterly useless in Mohammedan countries." T. G. Montgomerie, 'Report on the Trans-Himalayan Explorations, in Connexion with the Great Trigonometrical Survey of India, during 1865-7: Route-Survey made by Pundit -, from Nepal to Lhasa, and thence through the Upper Valley of the Brahmaputra to Its Source', *Proceedings of the Royal Geographical Society of* London, Vol.12, No.3 (1867-1868), p.169. But Edmund Smyth, who was responsible for selecting the two recruits, gave a different reason for them being called Pundits. Though "Pundit is a title generally given to learned Hindus, but schoolmasters are always called Pundit whether learned or not." Nain Singh was a government schoolmaster, and probably the first man to be sent to the Survey of India "to be instructed in the use of surveying instruments, and his title of Pundit (which means schoolmaster) seems to have stuck to him during the remainder of his life. *The same name was also given to the other explorers who followed him, who were no Pundits alone*." Edmund Smyth, 'Obituary: The Pundit Nain Singh', Edmund Smyth, 'Obituary: The Pundit Nain Singh', *Proceedings of the Royal Geographical Society and Monthly Record of Geography*, New Monthly Series', Vol.4, No.5 (May 1882), p.315, emphasis added.

[104] Smyth, 'Obituary: Nain Singh', p.315.

long recognised all the stars without any difficulty."[105] After being trained, Montgomerie sent both off together to make a route-survey, with directions to follow the 'Brahmaputra' from its source in the mountains east of the Lake Mansarovar to Lhasa.[106] The route they were to traverse, however, was perceived to be a difficult one, no survey of which was known to be made till then.

The two pundits started their journey on 20 March 1865, and hired four men as their servants to accompany them. On the way, they put on Tibetan attire as a camouflage. They called themselves to be the Bisahiris or tradesmen, and the reason they gave for their journey was buying of horses, and to pay homage at the Lhasa shrine. The party reached Lhasa on 10 January, 1866. Nain Singh in the process traversed about eight hundred miles of the 'Brahmaputra' and the Great Road that lay along the river.[107] The results of this exploration by Pundit Nain Singh were received at the headquarters of the Survey of India, which included, among other results, "[A]n elaborate route-survey, extending over 1200 miles, defining the road from Kathmandu to Tadum, and *the whole of the Great Tibetan road from Lhasa to Gartokh, fixing generally the whole course of the great Brahmaputra River, from its source near Mansarowar to the point where it is joined by the stream on which Lhasa stands.*"[108]

Through this exploration, the source of the river Brahmaputra was located.[109] Also, the main branch of the river was determined through inquiries made to the Tibetans of the place. Though Nain Singh travelled along the road that lay along the Great River, at the junction of the tributary Charta Sangpo, the road separated from the river, and therefore was not observable for a course of hundred miles further east, where the road again met the river. "Of this [sic] 100 miles of the rivers' course nothing positive is known," Montgomerie informed, as

[105] Montgomerie, 'Report on the Trans-Himalayan Explorations', p.147.
[106] Smyth, 'Obituary: Nain Singh', p.316.
[107] T. G. Montgomerie and Pundit, 'Report of a Route-Survey Made by Pundit, from Nepal to Lhasa, and thence Through the Upper Valley of the Brahmaputra to Its Source', *Journal of the Royal Geographical Society of London*, Vol.38, (1868), p.134.
[108] Montgomerie, 'Report on the Trans-Himalayan Explorations', p.156.
[109] "The river Brahmaputra was ascertained to rise in about north latitude 30.5^0, and east longitude 82^0", *Memorandum*, in Montgomerie and Pundit, 'Report on a Route-Survey', p.211.

according to "natives of the country" there was no good road along it. The pundit however "conjectured that the river flows (somewhat as shown in the map by dotted lines) south of a great peak which he observed from the road."[110] The Geographical Society, while discussing the *Report* by Montgomerie and its results, noted that "[T]he course of the great Sampu River in the maps by D'Anville and the Jesuit missionaries, was well confirmed by the labours of the Pundit."[111] For his "great journeys and surveys in Tibet, and along the Upper Brahmaputra, during which he has determined the position of Lhassa, and added largely" to the "positive knowledge of the map of Asia," Nain Singh was awarded the "honour of a Royal medal" in May 1877.

The mysterious puzzle of the river, however, "whether this river [of Tibet] is or is not the upper course of the Brahmaputra", still remained unresolved in absence of a "positive proof". Montgomerie noted that the discharge measured by Nain Singh of the great river at Chushul where it received the 'Lhasa River' was 35,000 cubic feet per second in the dry season of December and January. On the other hand Captain Wilcox, in the dry season of March 1825, measured the discharge of the 'Dihong' River, supposed then to be a tributary of the Brahmaputra and at the highest point yet reached in that river, at 50,000 cubic feet per second. The length that the river traversed between these two points was estimated by Montgomerie to be about 350 miles. It was quite probable, he argued, that the river received still more waters from tributaries along this stretch, and that a discharge of 35,000 cubic feet of water at the upper end might increase to 50,000 cubic feet at the lower end. Moreover, no tributary was large enough to the west of the Dihong to account for the discharge measured near Lhasa, he contended. The Subanshiri River, the largest of the tributaries of the Brahmaputra except the Dihong, had a discharge only of 15,000 cubic feet, as noted by Captain Wilcox during his river-surveys of the Valley. Montgomerie therefore agreed with Wilcox's conclusion, expressed almost forty years earlier, that "if the great river that flows to the south of Lhasa is not the same as the Dihong, it is impossible to

[110] ibid., p.212.
[111] Montgomerie, 'Report on the Trans-Himalayan Explorations', p.146.

see how a sufficient area can be left to provide the water of the latter."[112] Thus, in concluding his *Report*, Montgomerie noted,

> I consequently conclude that the great river south of Lhasa forms the upper part of the Brahmaputra, and is identical with, and forms the Dihong, or main branch of the said river… *Positive proof, as to whether this river is or is not the upper course of the Brahmaputra, can of course only be afforded by tracing the river from Lhasa downwards.* Every endeavour will be made to supply this missing link, meantime this last exploration tends to show that Turner [in 1783] and Wilcox [in 1825-8] were right in concluding that the great river which flows through the Lhasa territory is the upper course of the main stream of the Brahmaputra, the largest river in India.[113]

Almost five years after Nain Singh's journey, another party of Pundits was sent to explore some "portion of the unknown regions north of the Tibetan watershed of the Upper Brahmaputra." This was part of the Survey of India's attempts to "get more information as to this *terra incognita*", that is, "the vast regions which lie to the north of the Himalayan Range."[114] By the time the report of the explorations in the region were published in mid 1870s, the geography of an area of about 12,000 square miles was said to be elucidated, and "one northern tributary of the Upper Brahmaputra has been thoroughly explored, thus giving us some idea as to how far back the northern watershed of this great river lies."[115] Also, one explorer managed to trace the 'actual course' of the 'great Brahmaputra river' below Shigatze, thereby "adding to our knowledge" of the same.[116]

Nain Singh in the meantime led a group of "native explorers" to the sources of the Sutlej and Indus Rivers in 1870. In July 1873, the 'Pundit' "volunteered to make a fresh exploration" from Leh to Lhasa. He was given two objectives, and was to fulfill the more convenient of the two. The first was to join a caravan party to

[112] *Memorandum on 600 miles of the Brahmaputra River*, in Montgomerie, and Pundit, 'Report on a Route-Survey', p.218.
[113] ibid., pp.218-219.
[114] T. G. Montgomerie, 'Narrative of an Exploration of the Namcho, or Tengri Nour Lake, in Great Tibet, made by a Native Explorer, during 1871-2, and Memorandum on the Results of the Above Exploration,' *Journal of the royal Geographical Society of London*, Vol.45 (1875), p.315.
[115] ibid., p.329.
[116] ibid., p.330.

Peking, failing which he was to "endeavour to return to India by an easterly route from Lhasa, down the course of the Brahmaputra if possible."[117] On 15 July 1873 Nain Singh and "his party" left Leh, and passed en route Noh and Thok Daurakpa, to Lhasa. On his way he reported the existence of 'gold-fields' which were worked, and surmised that "there are enormous tracts of land where gold is to be obtained by digging."[118] The party reached Lhasa on the 18 November, and from there he left purportedly for pilgrimage to a monastery ten days' journey north of Lhasa. Accompanied by two assistants, Nain Singh moved northward, but soon "he wheeled round and commenced his return journey to Hindustan," in a southerly direction.[119] The explorers reached a place Sama-ye, from where they travelled downstream of the 'Brahmaputra'. The Report noted, "[I]n this portion of its course it is known either as "Tsanpo" or "the river", or by the name of Tamjun Kha." The Pundit observed that the flow of the river was very sluggish, and this he found out by throwing a piece of wood into the waters, "which was carried along a distance of 50 yards in two minutes and forty seconds."[120] This place was called Chetang, and was noted by the Report to be "the lowest *known* part of the course of the Brahmaputra in Great Tibet".[121]

At this point Nain Singh left the river, but not before "defin[ing] the course of the river approximately for a very considerable distance from where he left it."[122] From this place the "general course" of the river was visible for about thirty miles downstream, and there it encountered a mountain range that diverted it to a south-easterly direction. This information of the Pundit was noted to be in accord with that in Du Halde's seventeenth-century map. Enquiring about the further course of the river from Chetang, it was found by the explorers, that

> After leaving Gyala, the approximate position of which is about 130 miles below from Chetang, the river is said to flow for fifteen days journey through the rice-

[117] H. Trotter, 'Account of the Pundit's Journey in Great Tibet from Leh in Ladakh to Lhasa, and of His Return to India via Assam', *Journal of the Royal Geographical Society of Bengal*', Vol.47 (1877), p.88.
[118] Trotter, 'Account of the Pundit's Journey in Great Tibet', pp.101-103.
[119] ibid., p.113.
[120] ibid., p.116.
[121] ibid., p.115.
[122] ibid., p.116.

> producing country of Lhokhalo…Its inhabitants are said to carry on trade with the people of Kombo district, which lies between it and Lhasa, but they have no communication with the people on their south, the Shiar Lhoba, a wild race (probably the people who are known to us as Mishmis) who inhabit the country through which the great river flows to Gya (in Asom).[123]

With this new information, it was observed that "a little more light" had been thrown on the course of "the Tsangpo or the Great River of Tibet." Based on this new evidence, Trotter, who drew up the *Report* of this exploration, asserted that it would be safe to identify the Tsangpo with "the large river which, under the name of Dihong, enters Assam near Sudiya, where it is joined by the Brahma-kund."[124]

On his way back, Nain Singh was detained in Tawang [in the present-day province of Arunachal Pradesh of India] for a couple of months, as it was difficult to procure permission to traverse that region from the 'Tawangpas', or the 'Lamas' of the Tawang monastery. It was believed that to keep the trade between Tibet and Asom solely in their own hands, the Tawang officials "systematically prevent[ed] all strangers from passing through their country."[125] On 17 February 1875 Nain Singh left Tawang, and reached the British territory in the Darrang district on 1 March. He was then 'forwarded' from there to Guwahati, and then to Calcutta by steamer, where his journey ended on 11 March 1875. The *Report* on Nain Singh's journey observed that as a result of this endeavour,

> The Brahmaputra has been followed for a distance of 30 miles in a portion of its course, 50 miles lower down than the lowest point previously determined; and as its approximate direction for another 100 miles has been laid down, the absolutely unknown portion of that mighty river's course now remaining has been very materially reduced. The route Lhasa and Assam *via* Tawang, of which next to nothing had hitherto being known, has been carefully surveyed, and the daily marches described.[126]

[123] Trotter, 'Account of the Pundit's Journey in Great Tibet', p.116.
[124] ibid., p.116.
[125] ibid., p.121.
[126] ibid., pp.121-122.

Many native surveyors were subsequently engaged to follow Nain Singh's footsteps in order to record geographical information of the still-unknown regions beyond the Himalayas. In 1878 J. T. Walker of the Survey of India dispatched A.K., or Kishen Singh to "make his way as far as practicable through Tibet, which was comparatively a *terra incognita.*"[127] The route he started on was not visited by any European after 1811. After being detained for about a year in Lhasa and a long route-survey of Northern Tibet and Mongolia, in March 1882, Kishen Singh in Eastern Tibet "struck across the remarkable region of contiguous parallel rivers which forms such a prominent feature on all maps of Tibet, but which as yet has not been explored by any European, though several have attempted to penetrate it both from the east and the west."[128]

Thus, between Nain Singh's initial journeys in 1860s and '70s and the Abor Expedition of 1910s, there were continued attempts to solve the 'mystery' of the river. In 1880, Kinthup, another 'Pundit' from Darjeeling, was deputed to trace the great river of Tibet on its way downstream where it entered the "mysterious veil" of the "unaccounted for" territory between the Tibetan plateau and the Brahmaputra Valley. His subsequent exploits in 'exploration' has been much celebrated variedly as a story of high-adventure and 'romance', of courage and perseverance, of faithfulness and loyalty, and so forth. Drawing eloquence in praise of the past Indian explorers surveying across the Himalayas, a reviewer in the *Geographical Journal* commented in 1923, "Only once perhaps in the history of the Indian explorers has such *perseverance* [*a la* Kishen Singh] been equalled, [i.e.] Kinthup's *romantic* journey down the Brahmaputra."[129]

By the time Nain Singh retired from active service as an explorer for the Survey of India in late 1870s, it was presumed by colonial geographers that "the veil had been lifted from Tibet and the surrounding countries. A glimpse had been

[127] J. T. Walker, 'Four Years' Journeying Through Great Tibet, by One of the Trans-Himalayan Explorers of the Survey of India', *Proceedings of the Royal Geographical Society and Monthly Record of Geography*, New Monthly Series, Vol.7, No.2 (Feb. 1885), p.65.
[128] ibid., p.75.
[129] Kenneth Mason, 'Kishen Singh and the Indian Explorers,' *The Geographical Journal*, Vol.62, No.6 (Dec. 1923), p.440.

obtained of the mysterious lands beneath… The recent history, geography, and political conditions of the semi-independent states of Asia were revealed. The carefully compiled reports of both Montgomerie and Trotter were of surpassing interest."[130] It was felt, however, by the colonial government that though much has been now known of the territory, much more was still left and needed to be known. "Problems, however, remained still to be solved, and no break in the continuity of the work occurred in the retirement of the master."[131] Southeastern Tibet (viewed from the British side, that is) and its surrounding regions were continued to be 'explored' by 'native surveyors' in disguise, continuing till the late years of nineteenth century. Hari Ram (M-H), 'Lala' (L), Nem Singh (G-M-N), Sukh Darshan Singh (G-S-S), Sarat Chandra Das (D-C-S) and many others, now more referred to in the colonial records by their abbreviated pseudonyms than the earlier designation of the Pundit, were sent across the borders for gathering more geographical observations and information.

Kinthup's exploits in search of the 'Brahmaputra' had been called "one of the last romances of the Survey of India."[132] The results of his explorations went a long way for the colonial surveyors, geographers and other men of science, as well as the British government in bringing the unknown into the fold of the familiar. Yet it also stimulated the construction among them of modern myths or mysteries: the most imaginative and speculated one being the story of the falls on the Tsangpo. Though the oneness of the Tsangpo in Tibet and the Brahmaputra in Asom was widely-accepted by the end of the nineteenth century, European geographers and colonial administrators in India were equally intrigued by the drastic fall in the level of the river. The Tibetan plateau had an elevation of over 4000 meters, while that of the eastern parts of the Brahmaputra Valley was no more than 300 meters. Speculations were rife among the contemporary geographers and explorers about the existence of "the highest waterfall in the world" as the Tsangpo descended from Tibet to the British territory. It was supposed to be somewhere in the unknown "100 miles", of which Kinthup's narrative contained but a passing reference. Kinthup testified in his memorial

[130] ibid., p.438.
[131] ibid., p.438.
[132] ibid., p.191.

which was later translated into English for the Survey of India, mentioning for the first and also the last time in his narrative, the 'falls' on the Tsangpo, those that was to occupy the imaginations of a generation of geographers. He noted,

> The Tsangpo is two chains distant from the [Pemakoi-chung] monastery, and about two miles off it falls over a cliff called Sinji Chogyal, from a height of about 150 feet. There is a lake at the foot of the falls where rainbows are always observable.[133]

The absence of any reference to the falls other than the one in Kinthup's narrative, and that too in a very scanty manner, is noted as late as 1895, more than ten years after explorer's journey. Waddell wrote, "[N]one of the trained Indian surveyors, so far as I remember, have yet penetrated to the falls of the great Tsang-po river, in the lower part of its course through Tibet; but by hearsay reports these falls have been placed about $29^{0}36'$N. lat. and $94^{0}171'$E. long., between the districts of Kong-bu and Pema-koi."[134] Tibetans were claimed to be aware of the existence of the falls. He also obtained a drawing of it, sketched by a "lama artist" who was claimed to be a native of the Pema-koi district and knew the place well. This sketch, Waddell informed, was shown to some Tibetans, and "all those Tibetans who have visited the fall, to whom I showed the sketch, recognized the general correctness of its leading features."[135] The figure of the "king-devil" remained enveloped by the rushing waters, and cliffs of the fall by thick forests abound with tigers, it was noted. The fall itself was said to be approachable only from the below its gorge where there is a 'rude' monastery, attracting pilgrims and visitors.[136]

In April 1906, The Royal Scottish Geographical Society adopted a resolution to be presented to the British government, where it proposed that an expedition be

[133] Cited in Dunbar, *Frontiers*, p.189.
[134] Surgeon-Major L. A. Waddell, 'The Falls of Tsang-po (San-pu), and Identity of that River with the Brahmaputra,' *The Geographical Journal*, Vol.5, No.3, (March 1895), p.258.
[135] Waddell, 'The Falls of the Tsang-po,' p.258. He goes on, "This devil is placed there under a spell by the Lamas, and when the river is low, the faithful can see his figure looming dimly through the falling waters, as indicated in the picture."
[136] 'Proposed Exploration of the Brahmaputra', *Bulletin of the American Geographical Society*, Vol.38, No.5 (1906), p.301.

arranged and carried out to explore the still-unknown and uncharted territory in and around which the Tsangpo, to the site of the 'puzzle' or the "missing link". Its necessity was now made more acute "[I]n view of the great regret felt in geographical circles throughout the world that the proposed expedition down the Brahmaputra to Assam did not take place at the close of the Tibet Mission, 1903-04," led by Francis Younghusband.[137] Such an exploration was argued to be of "extreme interest or importance", as it was expected that it would "finally settle" the question of the river's identity once and for all, and would put an end to all the speculations surrounding it. Moreover, with the discovery of the falls on the river, the Society pointed out, "much light would be thrown on the geology of the region."[138] Apart from these, there were many other "grounds" too for prompting the early preparation of an expedition to this region: "nothing is known at present of the tribes who inhabit the tract through which this part of the river passes. Valuable collections of the fauna and flora would probably be obtained. It is possible that a good route might be discovered leading from Assam into Tibet by the great river; such a route would have much importance in promoting British trade with Tibet."[139]

Solving the Last Riddle: The 'Abor Expedition'

No such expedition, however, was taken up immediately. 'Explorations' by individual or small parties in the region though, initiated by Nain Singh's journeys in 1860s, continued from the Tibetan as well as the British territories

[137] ibid., p.301. Captain Ryder, a surveyor attached to the "Tibet Mission" led by Frank Younghusband, however, mapped the "*whole course of the Brahmaputra from Shigatse to its source*" in 1904 along with the "Mansarowar and adjoining lakes, and the sources of the Indus and the Sutlej, and has proved beyond doubt that no higher mountain than Mount Everest lies at the back of the Himalayas." See Thomas Holdich, Thomas Gordon, Douglas Freshfield, Henry Howorth and Frank Younghusband, 'The Geographical Results of the Tibet Mission', *The Geographical Journal*, Vol.25, No.5 (May 1905), p.493, Emphasis added. More European travellers followed the footsteps of the native spies in the decades to follow, and the 'iron curtain' of Tibet to Europe was finally lifted in 1920s, when Europeans, most prominently the British, and later the U.S.A. got increasingly involved in the politics of the region. For a secret travel to Lhasa by William Montgomery McGovern, see his *To Lhasa in Disguise: A Secret Expedition through Mysterious Tibet*, Delhi: Asian Educational Services, 2000 (1924).

[138] ibid., p.301. "In particular," the resolution of the Royal Scottish Geographical Society observed, "we might expect information as to the structure of the country traversed, and the relation borne by the vast Himalaya ranges to the elevated plateau against which they abut."

[139] ibid., p.304.

without having much success in "penetrating" those elusive "100 miles". Even as Kinthup was engaged in his observations in Tibet, Captain John Michell, "of the Intelligence Department, Simla" carried out in 1882 a reconnaissance survey approaching from Asom, of "the rugged mountain region of the upper waters of the Brahmaputra, in the hitherto inaccessible valleys of which lies the secret of the true course of the Sanpo river of Tibet."[140] Michell found that only two rivers of Asom had the possibility of being the continuation of the Tsangpo: the Dibong or the Dihong. The first river was "excluded from the question" since its course had been traced and its source almost ascertained by recent survey works.[141]

But this by no means made the job easier for the men of science grappling with the question, and "by no means solved by this fact". Michell was informed by the so-called Abors that the Dihong came down from the northwest and not from the north, and that it was *not* a continuation of any great river. "A view from the northern side of the gorge of the Dihong would probably settle the vexed question," asserted members of the Royal Geographical Society who discussed Michell's "reconnaissance sketch" of the mountain range.[142] But this was improbable, it was felt, given the fact that "[T]hey [the Abors] will not allow strangers to enter their country… [N]o European has crossed [this] mountain barrier".[143]

In January 1909, Colonel D. M. Lumsden, Noel Williamson, and Rev. W. L. B. Jackman visited the "Abor country" in an attempt to overcome this "Nature's barrier" – the region between Tibet and Asom unexplored by any European so far, and through which the Tsangpo-Brahmaputra was supposed to flow. They all

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[140] 'The Abor Country, on the Upper Waters of the Brahmaputra', *Proceedings of the Royal Geographical Society and Monthly Record of Geography*, New Monthly Series, Vol.4, No.11 (Nov. 1882), p.676.

[141] It was noted in a discussion in the Royal Geographical Society, referring to the expeditions of Colonel Woodthorpe in 1880s, that he "ascended [the Dibong] to the highest point yet reached by any European- considered himself to have derived, from extensive views, and native information in connection with them, a fairly accurate knowledge of the sources of Dibong, and the course of its main stream in the hills". This led Colonel Yule, a member of the Society to declare that "Dibong, in spite of its large discharge, does *not* come from Tibet." J. T. Walker, 'The Hydrography of South-Eastern Tibet', *Proceedings of the Royal Geographical Society and Monthly Record of Geography*, New Monthly Series, Vol.10, No.9, (September, 1888), p.581.

[106] 'The Abor Country', p.676.

[143] ibid., p.676.

had varied purposes for the journey, that of Lumsden being to "unveil" the 'mystery' of the falls.[144] But they were "dissuaded" on the way by the *gams*, the headmen or elders of different 'Abor' villages, asking them to abandon their wish to advance further northward. Williamson offered Rs.100 to the *gams,* but the latter demanded a similar amount for each village the colonial officers were to pass. The matter was settled with an offer of Rs.150 for all the villages collectively. But they were again asked to stop their journey just after a week's march by the eight *gams* who accompanied them as 'guides'. The *gams* decided that to "proceed onwards in the present unsettled state of the country would be very dangerous" for the explorers, as different villages ahead were on a "war-path". They were however asked to "come back next year, when all will be well. "Yes," the priest quaintly remarked, "next year if there is no war, sickness will probably be the excuse."[145] The exploration party could not make much progress, Williamson fell seriously ill and they had to abandon the "tour" just after a month of its commencement, returning from the village of Kebang in February 1909. Lumsden noted the other causes of their failure,

> We were blocked at Ke-bang, but by passive resistance only. On this occasion they had a valid excuse for their conduct, namely, their war. *Leading us too by the most difficult parts they could, throughout our journey, showed us they were none too keen to facilitate our movements.* For instance (as we afterwards discovered), the old *gam* of Ke-bang, when he faced us with a rock and the precipice *en route* to his village, slipped quietly away by another path, the entrance to which he had hidden by cutting down branches of trees.[146]

[144] Lumsden states, "The object of my visit was to unveil, if possible, the mystery still surrounding the falls of the Tsangpo; but Mr. Williamson's main object, as political officer, was to establish friendly relations with the Bor Abors, while the padre undoubtedly had his mission work at heart." D. M. Lumsden and Noel Williamson, 'A Journey into the Abor Country, 1909', *The Geographical Journal*, Vol.37, No.6 (June 1911), p.621.

[145] ibid., pp.625-626. "Sickness", or the fear of it, did play a role in the objections that were raised by the village headmen against the journeys made by 'strangers' passing through the country. Lumsden notes that "when we entered the village [called Reu], there was a dead young pig suspended over the gate- this to protect them against any sickness we might bring with us- an offering to the spirits of evil. On leaving, we were again treated to another phase of demon-worship. The young men of the village followed us for nearly two miles, throwing tiny shreds of bamboo at and over us. This [was] to ensure us taking the evil spirits with us."

[146] ibid., p.627. Such strategies of what is called the "passive resistance" of the villagers were often described as "treachery" in writings by the colonial officials. Emphasis added.

In such a situation, he thought that there were only two ways for exploring the Dihong River in the future. First, a small party of "two sahibs and a native surveyor" supported by a group of twenty 'coolies' who would "stick by the river and follow its course the entire way". They would offer presents to the villages on the way whenever it was necessary, such as coloured-thread and needle which Lumsden found were in great demand among the tribal communities residing these hills. If this way were to be found unsuccessful, as was shown by their own experience, the second way could be the last and only plausible option. This was "[B]y taking, say, 200 coolies and a force of native troops sufficient to guard them in their marches… With such a force of carriers and sticking to the native paths and villages as we did, would necessitate most of the supplies for coolies as well as the rest of the party from the plains, as it would be practically impossible to procure the needful amount of rice in the country."[147] This was an argument which implied the carrying out of survey and 'exploration' works through a full-scale military 'expedition', a euphemism for invasion. Force, or the fear of its violent application, would be used against the 'Abors' and other "wild tribes" if they continued their resistance to the progress of the expedition. It was a "conclusion" which anticipated the coming expedition against the 'Abors' two years still in the future. As was noted, "if little has been achieved" through the present effort by Williamson, Lumsden and Jackman, "a good deal has been done to pave the way for the next attempt."[148]

This "next attempt" by the British was to be in the form of the so-called Abor Expedition in 1911-12, its immediate cause being the murder of Noel Williamson, the Political Officer, and a whole party led by him in 1910 near the village of Reu. The colonial government accused the Abors of killing Williamson by treachery, luring into a trap when he unsuspectingly accepted the invitation of the headmen.[149] His sole objective in embarking on a second "mission", it was

[147] ibid., p.628.
[148] ibid., p.629.
[149] "Had Mr. Williamson on his second visit followed the route we then took," Lumsden observed, "no doubt he would have been met once more at Kebang by Maddu gam of Reu and had some excuse made, as was done to us, for preventing him crossing the river [Dihong]. To avoid this, and placing faith in the invitation the Gam of Reu then gave him to return next year and all would be well, he crossed the Dihong lower down and marched for his village, encamping for the night within a few hours of the place. That evening a number of Abors came from the Reu village and offered him

claimed, was to maintain the friendly relations which were "seemingly established" with the tribal residents of the hills during their first visit in 1909. Dr. Gregorson, whose objective was the same with Lumsden himself, i.e., the discovery of the Brahmaputra's falls, "was killed by the same treacherous gang, as well as those with him."[150] Williamson and others were killed through intrigue, and their death needed to be avenged – this was the thinly veiled suggestion that Lumsden put across to the colonial government as he wrote, "When the time arrives, no doubt the Assam Government (who are the best judges) will take the needful steps to deal with the situation."[151]

The time arrived soon enough, when the oppositions of the Abors and others to proceed through their country could no longer be "admitted by default."[152] The expedition had many other objectives besides exploration of the unknown parts of the Dihong, noted Bentinck, the political officer attached to the Abor Expeditionary Force:

> I am not at liberty to detail all these, but may mention the exaction of reparation from a most elusive enemy, the construction of a mule-road over heart-breaking country, the opening up of friendly relations with tribes and villages whose very names were either unknown or matters of vague and generally incorrect conjecture, and the necessity of appearing always in sufficient force to ensure against accidents.[153]

The surveys of Captains F. M. Bailey and Morsehead attached to the Abor Expedition having been completed during the campaign, the course of the river was said to "leave little doubt as to the general character" of the river. The 'myth' of the falls was dispelled, and so was the hope of finding the cannibals beyond the known territory, though some portions of that region still remained to be

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presents. This no doubt strengthened his belief that he would be welcomed on arrival, and on getting there next morning and being met by Maddu gam he unhesitatingly followed him to his doom." ibid., p.621.

[150] ibid., p.621.

[151] ibid., p.621.

[152] A. Bentinck, 'The Abor Expedition: Geographical Results', *The Geographical Journal*, Vol.41, No.2 (Feb 1913) p.98.

[153] Hamilton, *An Account of Assam*, p.97.

observed 'directly'. The stories of Kinthup and other native explorers of the past who visited the area were checked, authenticated, and refuted or corroborated. Kinthup's account was found to be the most authentic of them all, and his 'honour' restored when as a result of the recent findings and authentication of his story, he was sought out from oblivion in Darjeeling, and given a royal medal.

Thus, by the second decade of the twentieth century, the river itself was almost completely mapped, with the disappearance of the dotted lines of the previous maps which showed the Tsangpo/Brahmaputra in this *terra incognita.* The river now was fully known and mapped out, with the scope for mysteries, conjectures and speculation about its course being put to rest forever.

Studying the Brahmaputra in the Twentieth Century

The Brahmaputra as a route of strategic importance for the British Indian Empire once again came to the fore at the beginning of the First World War I. The *Military Report on the Brahmaputra River System*, prepared and printed in 1914 from Simla by the British Indian Army is a manual to the British forces for ready reference, presented visual details and maps of the river-system.[154] Descriptions of the Brahmaputra and its tributaries connecting the various towns and administrative centres in the valley are shown with various topographical indicators. A military report on the 'Dihang' Valley, one of the major northern tributaries of the Brahmaputra in Eastern Assam, was to follow a few years later, with similar characteristics and a similar purpose.[155]

While the use of the Brahmaputra as the main conduit of troops sent to various parts of the Valley as well as the adjoining hills continued through the nineteenth century well into the twentieth – at times with renewed importance as was during the War in 1914 – in absence of a reliable road transport system, it was also the main route of commerce in the North Eastern Frontier. Both these

[154] Indian Army General Staff, *Military Report on the Brahmaputra River System*, Simla: Government of India, 1914, ASA.
[155] Indian Army General Staff, *Military Report on the Dihang Valley*, Simla: Government of India, 1919, ASA.

aspects led the colonial government to take up minor measures of studying and 'improving' the rivers in the Valley. As has been pointed out above, measurements of volume of water carried by various rivers were collected from mid-nineteenth century, the navigable channels of the Brahmaputra, which kept frequently changing and shifting, was monitored to keep up the steamer communication, snags and bends were cleared from many smaller rivers that were impediments to smooth sailing of carriers, and so on.

Wilcox as well as Pemberton who was to continue the survey works in the region in mid 1830s, scrupulously noted not only the observations required exclusively for the immediate purpose they had in hand, but also had a keen eye for mapping out the terrain for future commercial enterprise. Pemberton crisscrossed the frontier during his surveys over the plains of the Brahmaputra as well as the hilly terrain of the "Eastern Frontier" during mid 1830s, regions that were "never before visited by Europeans". He not only carried out his professional part of the job, but also reported the existence of "valuable timber" and mineral and other resources that he observed during his journeys. Pemberton's observation on Assam here is instructive:

> Looking to the extraordinary fertility of the soil, the noble river which flows through the valley from one extremity to the other, the innumerable streams falling into or branching off from it, both on the north and south, and the proofs derived from history of its former affluence, abundant population, and varied products, there can be no doubt that in the course of a very few years…this province will prove a highly valuable acquisition to the British Government- its revenue already shows progressive improvement…The opening lines of communication, and facilitating thereby the transit of merchants with their goods, is, next to a settled form of government, which Assam now enjoys, the object of primary importance for the effectual development of the resources of that country.[156]

[156] Captain R. Bolieu Pemberton, *Report on the Eastern Frontier of British India*, Guwahati: Department of Historical and Antiquarian Studies, 1991 (1835), p.76.

Thus, for instance, if Wilcox was the one to discover pools of petroleum in the wilderness of eastern Asom, a discovery not very far in time and space from what was considered as valuable discoveries of tea and coal in the same region, Pemberton informed his employers of the discovery of iron-ore in Manipur. Such concerns though were not coincidental. It reflected one of the major imperatives of the colonial regime to expand the frontiers of its possessions eastward. Along with it was to expand the frontier of knowledge about the colonial possessions to take stock of the natural resources and commercial enterprises offered by the region.

From the early twentieth century, the colonial government was forced to draw its attention to another aspect of the river-system, the floods. Particularly after the earthquakes of 1897 the terrain in the valley underwent changes that, along with other social factors, started to make the floods more devastating to the poorer sections of the peasantry, thereby also affecting the collection of land revenue. The demand for the construction and maintenance of embankments to protect farmlands, along with demands for flood relief and waiver of land revenue was forcefully made by peasants to the government, which the latter had so far conveniently made the responsibility of local bodies and village associations, with very little assistance from the government funds.

The construction of elevated railway lines cutting across the natural path of the floodplains also had an adverse impact on abating the devastation of floods. There followed enquiries into the causes of the floods in the Valley taken up by various branches of the government, including the study of the effects of deforestation and soil erosion, and of man-made structures such as embankments and blockades to the natural course of rivers and flood-waters, etc. Though these studies identified some of the major factors contributing to destructive floods, it was admitted that the scientific knowledge of the river system in particular and of the region's ecology in general was partial and highly inadequate. The considerations of imperial finance and revenue, whereby the colonial government held that expenditure on the study of the causes of floods and on flood-protection works was wasteful and without adequate returns,

played a decisive role in the apathy towards reducing the adverse affects of devastating floods on its subject population.[157]

After 1947, and particularly after the great earthquake of 1950, a series of scientific studies were commissioned by Indian government and were conducted by its experts to produce better knowledge about the Brahmaputra river system. While the provincial government took a pragmatic approach by taking up the construction of earthen embankments all over the Valley as the most readily employed and inexpensive flood protection measure, the central government aimed at undertaking long term projects that were aimed at "harnessing" the "water resources" of the region. It can be argued that while the river embankments were undertaken by the provincial government with a short-term perspective, i.e., without thoroughly studying the taking into consideration their possible future-affects, considering only the local needs and the perceived immediate benefits of embankments, the studies engaged by the central government took the whole region which comes under the 'watershed' of the Brahmaputra river under its purview, and keeping in mind long-term objectives. These studies went into collecting scientific and technical data about the river system from 1950s and analysed long-term data generated by government agencies. However, as will be argued subsequently, the production of scientific knowledge about the Brahmaputra in this latter phase too was informed by interests of the State and commerce, as was the emphasis and deployment of one form of knowledge by the state-scientists over others.

While embankments were continued to be constructed at a frantic pace in the Valley, big dams were presented as the only permanent and long-term answer to the recurring floods in the Brahmaputra. In addition, they could also generate electric power, expand areas under irrigation, and thereby usher in development of the region, was an oft-repeated argument of the State. The studies that were carried out about the river system after 1950s were aimed at looking into these possibilities. The U.S. agencies along with Indian government's experts recommended the 'taming' and 'stabilization' of the river through such

[157] For a further discussion on this subject, see Chapter VI: 'Floods and the Fields'.

multipurpose reservoirs on the major tributaries of the Brahmaputra, after thorough scientific studies were undertaken. In the last decades of the twentieth century the construction of these big dams commenced, while the work of collecting scientific data of every major river in the Seven-Sisters region continued simultaneously, with the 'Master Plan' for many of the major rivers in the region completed by government organisations during this period.[158] The 'scientific' nature of the plans and projects of the State on the Brahmaputra, however, has come under trenchant critique in the last few decades, reminding once again that knowledge production –whether under colonialism or imperialism, whether scientific or otherwise– is even today equally integrated with the exploitation of the people and Nature.

[158] See Chapter VIII: 'River Control' for more details.

CHAPTER II

RIVERINE OCCUPATIONS

Productive activities in the Brahmaputra Valley were in many ways related to the rivers, agriculture among them being the most prominent and the peasantry the most numerous of the social classes, whose lands were fertilized by the silt brought down by the annual inundations, at the same time filling their ponds and lakes with fresh spawn and water. But by no means were peasants the only ones who had a close relation with the rivers. The potters collected the clay loam from the river banks, as well as the colour which was naturally found there. The rivers were a source of much of their demand for wood to run the furnaces, as in fact was the case with all the riverine communities, for whom catching timber brought down by the floods was an important activity during the monsoons. The lives of the fisher-people and boatmen were also closely integrated with the rivers, they most often living in close proximity to the river. We also find that the river-islands on the Brahmaputra were important grazing grounds, and the grazers, cattle-owners and milkmen regularly occupied and inhabited these islands along with the peasants who practiced *pam* cultivation on these fertile islands in the winters. Of course, as it would be obvious, those communities and villages which were dependent on the river were invariably the poorest and

most destitute ones, having hardly any access to permanent cultivable land or the other means of production for taking up cultivation, or means of saving a surplus. The more numerous of these riverine communities in the Valley were the Kibartas/Nadiyals and the Mishings, with their distinctive *chang* or raised houses above the flood level on the river banks. Then there were the gold-washer communities collectively called the Sonowals by their profession, who eked out their living by seasonally working the rivers for gold predominantly during Ahom rule, more as an obligatory royal service than a chosen profession.

Even though the degree and the kind of relationship to the rivers varied, almost every household or village in the Valley was familiar with the rivers. Almost every family owned a boat for transport during the rainy season, when the fields and hearths transformed into huge sheets of water running for miles at end. The river in the colonial period signified much more than a mere source of devastating floods, or as an anathema to growth and development, as the late twentieth century imagination of the rivers propagated by the State would like its subjects to believe. In fact, this relationship was much more complex to be captured by such a linear and one-sided attribution.

Washing for Gold: The Sonowals

It is said that most of the rivers in the Brahmaputra Valley carries rich sediments of gold, and in the pre-colonial period gold-washing held considerable significance for the ruling monarchy as a source of the precious metal. According to the Mughal chronicler Shahabuddin Talish who accompanied Mir Jumlah in his expedition to Assam in 1662,

> Gold is washed from the sand of the Brahmaputra. Ten or twelve thousand Assamese are engaged in this employment, and they pay to the Raja's government one *tola* of gold per head per year. But this gold is of a low standard of purity; a *tola* of it fetches only eight or nine rupees. It is said that gold can be

> procured from the sand at all places on the bank of the Brahmaputra; but the only people who know how to gather it are those Assamese.[1]

The hill streams were considered to be better source of the gold dust in comparison to those running through the Valley, and those with a fast current more preferable than the ones with a slower flow, with the best gold supposedly to be found in the most winding streams with the strongest currents.[2] As such, the gold of the Brahmaputra was of poor quality, compared to many of its tributaries ensuing from the surrounding hills that had faster currents. Of all these rivers, Maniram Dewan – who wrote a treatise on the subject in the *Journal of the Asiatic Society of Bengal* – identified a few of the major rivers to be most productive. These were the rivers Seedang, Kakoi, Kadam, Somdiri, Diju, Bhairabi, 'Joongloong', Jajee, and Disoi. Captain Hannay added the rivers Boroli and Subansiri in the list, while according to him Disoi and 'Joglo' contained the purest and the best gold. In the 'Joglo' river, Hannay informed, the metal was found in large grains, about the size of a grain of rice. The color of the gold in Disoi and 'Joglo' was said to be of a deep yellow, and it was so much valued that the jewels of the royal family was prepared from the gold procured from the two rivers.[3]

Other officers of the East India Company also corroborated these references to the gold-carrying rivers of Asom. Lieutenant James Matthie, collector and magistrate of Darrang in his report to the commissioner Francis Jenkins in 1835 wrote that the gold "considered the most precious is found in the river Jengloo, which runs from the northern mountains, and enters the Brahmaputra above Suddeah."[4] In the second category were the rivers Borohu, Dikrai, Subansiri, Borgong, Bareli and Dhansiri on the north bank of the Brahmaputra and the

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[1] Shihabuddin Talish, *Fahiyat-Ya-I-Ibriyya*, translated by Jadunath Sarkar, *Bihar and Orissa Research Society*, Vol.1, p.179, cited in Edward Gait, *A History of Assam*, p.143.

[2] 'Native Account of Washing for Gold in Assam', by Moneeram, Revenue Sheristadar, Bur Bundaree, *Journal of the Asiatic Society of Bengal*, No.79, July 1838, pp.621-625.

[3] Captain Hannay, 'Further Information on the Gold Washings of Assam', *Journal of the Asiatic Society of Bengal*, No.79, July 1838, p.625.

[4] *Report on the Judicial and Revenue Administration of Assam, 1835*, Lt. James Matthie, Principal Assistant to the Governor General's Agent, Collector and Magistrate of Zilla Darrang, to Captain Francis Jenkins, Commissioner of Assam, 15 February 1835, File No.298, Bengal Government Papers (B.G.), ASA.

Desoi and Dikhow on its south bank.[5] The most inferior quality, Matthie reported, was procured from the Brahmaputra.[6]

Captain Hannay estimated that a considerably numerous class of people who were skillful in gold-washing existed in Asom under the Ahom kings. From the above estimate as well as the number of contracts that existed between them and the state as to the mode and rate of revenue payment, he assumed that this work contributed considerable quantities of gold to the royal treasury.[7] This group of people obliged to collect gold by royal decree was designated as Sonowals.

The colonial documents however are ambiguous in their description of the Sonowals. Capt. Hannay noted, "The gold-washers of Assam are designated sonewahls, but as they were distributed in different parts of the country and placed under the authority of Phokans, Boorooahs, and other chiefs, they were known only by the names of 'Khel' or tribe of chief, under whom they resided."[8] People of all classes and castes could be part of the Sonowal *khels*, though they were primarily constituted by the 'Beeheahs' – identified by Hannay as a "tribe of Ahoms" – and the Kacharis. According to this account, the Sonowal Kacharis of Sadia and the region in its vicinity were a distinct group who were entirely under Ahom Raja himself, and were to supply the state with gold when called upon to do so. As Matthie's description goes, the Sonowals of Darrang district were also organised under *khels* during the Ahom rule, and in different parts of central and eastern Asom there were about 25 *khels* who used to be employed in washing the sands of both the northern and southern rivers for gold dust. They supplemented this work with boat-building and foraging forest produce.[9]

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[5] Matthie, *Report on the Judicial and Revenue Administration of Assam*, *1835*.

[6] *Report on the Judicial and Revenue Administration of Assam*, *1835*, Lieutenant James Matthie, Principal Assistant to the Governor General's Agent, Collector and Magistrate of Zilla Darrang, to Captain Francis Jenkins, Commissioner of Assam, 15 February 1835, File No. 298, B.G. Papers, ASA. On the gold carried by the Brahmaputra, Matthie wrote, "Some is also procurable in the bed of the Brahmaputra, but it is considered very inferior, being of a much lighter colour, and only sells for Rs.10 the tolah. The parts in which large pebbles have accumulated and under which the sand has a red or black appearance, are considered the most promising deposits of gold."

[7] Captain Hannay, 'Further Information on the Gold Washings of Assam', *Journal of the Asiatic Society of Bengal*, No.79, July 1838, p.625.

[8] ibid., p.625.

[9] ibid., p.626.

When Maniram Dewan wrote his note on gold-washing in the *Journal of the Asiatic Society of Bengal* in 1838 – an important source of information regarding gold-washing in the Valley – eastern Asom was still under Ahom rule, although as a tributary to the British East India Company. According to Dewan, at that time there were about 150 to 160 *gots* or close to five hundred Sonowal *paiks* in the entire 'Upper Assam' who paid taxes to the royal treasury for the right to wash gold. Most of them resided in the north bank, while only 26 households survived in the south bank. There were 250 to 300 *gots* in the Matak country ruled by the Bar Senapati in addition. About ten to fifteen *gots* were residing in Biswanath, while 50 to 60 *gots* had their villages between Sadiya and Saikhowa.[10] Though the Sonowals specialized in the task of extracting gold, "other pykes sometimes join with them and receive their share."[11]

Hannay, who was posted as the commanding officer in eastern Asom in 1853, wrote a paper titled 'Notes on the Gold-fields of Assam', where he argued that the number of people designated as Sonowals were numerous, and the region of Sadiya including Lakhimpur alone had population of close to 10,000 gold-washers. He notes,

> Although it is authenticated that the produce of the gold-washings in Assam, particularly Upper Assam, formed a very considerable source of revenue to the Assam Governments of former days, no correct data can be obtained so as to give an idea of the exact amount of gold realised yearly:- but as the Sonwals, or gold-washers, one of the constituted khels or sections of the inhabitants (according to occupation) who paid their taxes in gold, form a large portion of the population, we may reckon on its having been something considerable, when in the northern district of Suddeah alone, including Luckimpore, these Sonwal paiks amounted to 10,000.[12]

Various factors, however, contributed to the abandoning of gold-washing as a productive activity, most of the Sonowals preferring to fall back upon paddy

[10] ibid., p.629.
[11] 'Native Account of Washing for Gold in Assam', by Moneeram, Revenue Sheristadar, Bur Bundaree, *Journal of the Asiatic Society of Bengal*, No.79, July 1838, pp.621-625.
[12] ibid., p.622.

cultivation during the colonial period, leading to the widely held belief among the colonial officials that this profession was kept alive by the Ahom royalty under obligation and coercion.

The Process of Washing

The process of washing for gold from the rivers was a specialized and labour-intensive one, with the remuneration for the amount of labour put being considered unprofitable. In the organisation of production, at least four labourers were required to establish one work unit. The Sonowal Kacharis of Sadiya formed four men to a *got* or basic production unit. Their method of washing required four men to each trough or *doroni* to keep up an uninterrupted operation, with one man to wash, two to bring the soil, and the fourth to dig out the sand from the river-bed, interchanging their functions at intervals to relieve each other.[13] In a short description of the washing process, Matthie informed that the sand was first placed in small sieves made of bamboos which helped in segregating the pebbles. The sand that passed through the sieve was then placed in wooden troughs with obliquely cut bottoms. The sand was placed on the high end and water dropped on it from a vessel punctured with small holes producing a shower, carrying off the sand. This process, after repeated several times, left the precious particles. Each worker thus obtained 2 or 2.5 *tolahs* of gold on an average during the season, which Matthie says spanned from 1 November to 1 February.[14]

Hannay, describing the common method of extracting gold from the rivers in his *Notes*, does not fail to express his admiration and favourable impression of the Sonowals. He said that the Assamese generally washed in a trough, and although for want of cleets there was some loss, "it is wonderful to see with what dexterity the left hand is used to keep the dust at the head of the trough, and to allow of a constant stream of water passing down its slope, thus washing the stuff

[13] Captain Hannay, 'Further information on the gold washings of Assam', *Journal of the Asiatic Society of Bengal*, No.79, July 1838, p.628.
[14] ibid., p.627.

thoroughly in a very short time and leaving nothing but the very finest of the *schlich* with its gold-dust." Though the main instrument of washing – the trough – left much to be improved, however, considering it was light and one man could operate it easily, it was admittedly the cheapest method which could be employed in Asom. The 'Singphos' used an oval board for this purpose, which performed the same function of the trough with almost equal efficiency when used expertly. To Hannay, this was the best and cheapest method of extracting the gold, for not only could an expert gold-washer separate every particle of oxide and gold from the sandy rubble, but "he will after the day's labour is over, take the schlich and gold-dust on the board, and by a peculiar dexterity of hand with the board and the water", wash away the particles of oxide, leaving the latter at the head of the board. This minimized the necessity of using the expensive quicksilver for 'licking up' the oxide as was generally done before the melting of the gold could be taken up.[15] The emphasis of the gold-washers, Hannay tells us, was to keep their know-how a closely guarded secret, reportedly giving the others the impression that only they knew the particular and specialized methods of washing gold, and that they alone knew the most favourable spots for the work.[16]

Maniram Dewan goes to great details in narrating the method used in the processing during the first decades of the nineteenth century. The first step was to indentify the suitable place for washing, where the possibility of obtaining the metal was higher. The Sonowals first looked for a stretch of the river where the current was strong with a falling bank above it and on a sharp turn of the channel. The opposite shore of such a place, where sand from the falling bank was deposited mixed with gravel, was selected for processing. Each production consisted of a *patoee* (the master gold-washer) and four *pallees* (assistants), who washed the sand with the help of a trough called 'dorongee'. They began by exploring the depth at which the gravelly sand could be found, with a sharp pointed bamboo called *sokalee*. A piece of split bamboo (*bans chola*) was then used to examine the sand whether there was any gold dust in it. If twelve to

[15] *Memorandum on the Former Gold-washings in the Assam Valley Streams*¸ Circular No.81, 25 October 1876, No.3666R, *Gold-washing in the Assam Rivers*, Pre-1874 Index, ASA.
[16] ibid., p.626.

fourteen grains were found, immediately temporary huts were constructed and the operations commenced.

The deep part of the stream was embanked with sand if the stream was small and the current moderate, and with stakes and grass if it was large. The channel of the stream was thus directed over the sand so as to wash away the upper surface of the sand exposing the gold sand. This done, the bund was reopened and the stream allowed to return to its original bed. The upper sand was then carefully scrapped off and the gold-mixed sand collected with a wooden spade called *kater dohtal*. This tool was normally 1.5 cubits long and 1cubit broad with a handle four cubits long, the blade was shaped as a crescent with holes at each corner through which a string was passed on. The string was held by two men while a third person pressed the spade down in a perpendicular position. The sand was brought in small baskets called *cookees* and thrown on a bamboo strainer called *ban* which was laid over the trough by the *dorongee*.

Water was now poured with one hand by the gold-washer over the sand while with the other hand he moved the sand about, sweeping off the larger particles of gravel from the surface of the strainer. In this way the dirty sand ran off the trough, while the clean sand and gold remained at its bottom. Every forty *cookee* or basket of sand washed was measured as one *sheea*, and a *ruttee* or more of gold produced from one *sheea* was considered to be a very good outturn. During the long days the gold-washers often could clean around thirty *sheeas* of sand, sometimes only producing one *ruttee* of gold. In the cold season when the days were shorter, only about twenty five *sheeas* could be washed, each party thus making on an average about ¼ of a *tola* daily. If they were fortunate, and "happen to fall on a good old stream that has not been disturbed for or 6 years they get 2 ruttees of gold from every sheea or washing, and then each party makes about half a tolah daily."

In the final part of the process, about an *anna's* weight of quicksilver for each tolah of gold dust was used and washed with water again. This leaves the quicksilver with the gold dust in lumps. These lumps were then put into a shell

and burnet on a fire made of charcoal from the Nahar tree. The quicksilver evaporated and the shell became lime as a result, which was then carefully taken up in a spoon and thrown into water, allowing the gold to fall into the bottom.

Though the process of procuring the gold particles was considered by Matthie to be a crude and simple one, it nevertheless was tedious and labour-intensive. It appears that this work was not enough to sustain the Sonowals for the entire year, and their economic status was not distinguishable from the other *paiks*. They were therefore partly dependent on cultivation as well as other productive activities for their living. Washing for gold in the rivers were undertaken only in a few months of the year, and this working period was interspersed with customary holidays. There were at least four such holidays every month, on the new and full moon days, on the first of the month, and on *ekadosee* or the eleventh day of the month. The gold was washed for in all streams in the cold season during the months of Magh, Fagun and Chot, roughly covering the months of January to April, and in a few streams in the months of Ahin and Kati (September and October).[17]

Dewan calculated the number of gold-washers in the period of Ahom rule in Sadiya region to be not less than 10,000. "Allowing, therefore, that every paik, at the lowest rate, supplied four annas weight of gold-dust yearly, the total amount would be 40,000 grs. for that district alone". Since the same system of gold-washing was also practiced in the south bank districts of the Brahmaputra, Dewan estimated that the yearly produce of gold-washing in Assam in that period amounted to £8,000 or £10,000 sterling.[18]

He describes the existing system of sharing the produce between the primary producers and the state officials, high and low. There was an elaborate system of collecting and sharing the profits of gold-washing, from the petty state officials up to the king. In the season of gold washing, the Sonowal *paiks* went as a group under the local officials –the Boras and the Saikias– to the designated spot. After

[17] 'Native Account of Washing for Gold in Assam', by Moneeram, Revenue Sheristadar, Bur Bundaree, *Journal of the Asiatic Society of Bengal*, No.79, July 1838, p.625.
[18] ibid., pp.621-625.

the Sonowals put in the back-breaking labour working for gold for the entire season under the supervision of these state officials, each *paik* had to pay ½ a *tolah* of gold to the state treasury as his share of tax. Not only this, an extra cess was also levied where the processing involved melting, the requirement of which depends on the quality of the gold procured. For the best quality of gold called *votom*, the Sonowal *paiks* had to give 3 *ratis* in addition to the ½ tolah, 4 *ratis* for the second best kind or *modom*, and for the inferior kind or *norrom*, 6 *ratis* or 1 anna. Apart from what was claimed by the royal treasury, a 'commission' of one rupee's weight in every 20 was collected by the *Phukans* and the *Baruahs*, Ahom state officials under whom the Boras and Saikias worked. Similarly, half a *tolah* for every 20 *tolahs* of gold was entitled for the *Tekelas* and the *Boras*, while ¼ *tolah* of gold was collected by the Bhandar Kakoti. When the tax in gold was presented to the Ahom king, the Chang Kakoti, the Bhadari Ligira, the Pachoni, and the Kukurasowa Baruah –all officials of the royal court– together claimed 1¼ *tolahs* of silver for each tolah of gold deposited.[19]

Matthie was also of the opinion that the burden of royal taxation on the Sonowals was much higher than those imposed on the peasantry. The *paiks* constituting the Sonowal *khels* paid double the amount of capitation tax payable by the other *paiks*, each having to pay either Rs.7 in cash or half a *tolah* of gold per annum to the royal treasury, he concluded.[20] A collective payment of gold weighing 1,000 *tolas* was exacted from the persons washing in each of the rivers Dihang, Dibang, and Lohit, and 500 *tolas* from those washing for gold in the Noa Dihing and Buri Dehing Rivers.[21]

[19] ibid., p.622.
[20] *Report on the Judicial and Revenue Administration of Assam*, *1835*, Lt. James Matthie, Principal Assistant to the Governor General's Agent, Collector and Magistrate of Zilla Darrang, to Captain Francis Jenkins, Commissioner of Assam, 15 February 1835, File No.298, Bengal Government Papers (B.G.), ASA.
[21] *Memorandum on the former Gold-washings in the Assam Valley Streams*¸ Circular No.81, 25 October 1876, No.3666R, *Gold-washing in the Assam Rivers*, Pre-1874 Index, ASA.

The Decline and the Colonial Attempts to Revive Gold-Washing

> *Gold-washing has become so unprofitable in Assam, that it has been wholly abandoned; but there are other valuable products, which a people less indolent and less addicted to smoking than the Assamese might turn to good account.*[22]

Gold-washing, the colonial officers argued, was not a remunerative profession. Lieutenant James Matthie, the then district magistrate of Darrang, reported in 1835 to the Chief Commissioner of Assam that there was only one *khel* of Sonowals in his district and two in the Nowgong district, the remainder being in eastern Asom. Those residing in Darrang were assessed as the other subjects. A very small quantity of gold was now procured, although the demand for it was very great. He admitted that "*I have not been able to ascertain the real cause for the people neglecting such an apparently profitable trade*." One explanation which Matthie came across was that the Sonowals were very often robbed because of their profession and possession of gold, which forced them to take up agricultural pursuits.[23]

The explanation given by Matthie for the demise of this practice, in terms of robbery and lack of sufficient safety for the Sonowals, seems not only vague but also far fetched. The more probable factor could be the primitive techniques of gold extraction which required extensive labour, so much so that the amount of gold procured could hardly pay for it. This occupation was sustained only as long as the practice was carried out as an obligatory service to the State. But even at that period, the gold left to the producer alone, after fulfilling the requirements of the royal treasury and its functionaries, could not sustain the families of the Sonowals, and had to be supplemented by other activities, most notably cultivation. The work was abandoned after obligatory labour service was discontinued by the colonial government. One of the explanations for the decline

[22] 'A Sketch of Assam: with Some Account of the Hill Tribes, by an officer in the Hon'ble East India Co.'s Bengal Native Infantry, in Civil Employ', p.138.

[23] *Report on the Judicial and Revenue Administration of Assam*, *1835*, Lt. James Matthie, Principal Assistant to the Governor General's Agent, Collector and Magistrate of Zilla Darrang, to Captain Francis Jenkins, Commissioner of Assam, 15 February 1835, File No.298, Bengal Government Papers (B.G.), ASA. Emphasis added.

of gold-washing can be found in D. A. Macleod's opinion which was typical of the contemporary colonial view on the matter. He wrote in 1837,

> Gold is found in much less quantity than is generally supposed, few people make a livelihood by washing for it, which is the more remarkable as no extra revenue is now exacted from them as in former times, when they paid thrice as much as their neighbours, besides being robbed of the fruits of labour by the Raja and people immediately over them, which would not now be the case. In former days no doubt it was very plentiful, when large numbers of people were forcibly employed by the Raja and rich nobles in search of it; but now no coercion being allowed, and the people having very great aversion to hard work, which gold washing is, never think of having recourse to it, excepting when driven to it by necessity.[24]

A reference to the working of gold-washing in colonial Asom was made in a letter in 1851 from Captain Vetch, political agent of Upper Assam, to the then commissioner Francis Jenkins where he reported on the inquiries made after receiving complaints from eleven parties of gold-washers who requested protection from the 'extortions' they were allegedly subjected to by the Abors and Miris whenever they searched for gold in the Dihong River.[25] Vetch informed that all gold-washers under the erstwhile Ahom government were taxed at Rs.5 each per annum. The colonial government abolished this poll tax and introduced land revenue, while the rights of washing for gold in the numerous streams of the district were now farmed to the highest bidders. The Dihong was one such river, and the right of gold-washing for the year 1951 was leased out for Rs.80. The lease covered the stretch of the river from the point where this 'immense' river issued from the hills to its junction with the Brahmaputra. This stretch was little more than twenty miles in length, and the preferred locations for gold-washing were situated from twelve to seventeen miles from its mouth.[26]

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[24] D. A. Macleod, Assistant Surgeon, Assam Light Infantry, *A Sketch of the Medical Topography of Bishnath, and its Immediate Neighbourhood; with an Account of the Diseases Generally Prevailing in Assam*, Calcutta: Bengal Military Orphan Press, 1837, p.20, NAI.

[25] *Memorandum on the former Gold-washings in the Assam Valley Streams*¸ Circular No.81, 25 October 1876, No.3666R, *Gold-washing in the Assam Rivers*, Pre-1874 Index, ASA.

[26] ibid.

The officer also mentioned that the quantity of gold at present annually produced from the Dihong was not more than 40 or 50 *tolas*. However, this work in Dihong and other gold-producing rivers provided a ready resource to the *ryots* for earning the valuable money with which they could pay their land revenue, which the produce of the land alone hardly allowed. Vetch held that the rivers could yield much more if the washing was extensively carried on and for a longer period. But in the present conditions, the gold-washers seldom extended their operations over fifteen days at a time.[27]

E. A. Dalton was assigned the task of examining and reporting on the "gold-producing capabilities to the Jugloo", a tributary of the Buri Dihing in Lakhimpur district since it was believed that "According to tradition, the tract through which the Jugloo flows contains rich gold deposits."[28] Dalton proceeded to the said river with an expert gold-washer "and some coolies" to conduct the examination through experiments. His findings were later presented to the government as a report titled *Account of a visit to the Jugloo and Seesee Rivers in Upper Assam*. Describing his journey, Dalton narrated that after about an hour's walk from the Dihing River upstream of the Jugloo, they commenced washing in a rough wooden pan made for the occasion. The very first attempt yielded a few specks of gold, though pale in colour. The washing was continued at regular intervals while advancing, and at each site, a pan of gravel was invariably found to contain a few of such particles. As the washing progressively moved upstream and with deeper excavations on the river bed, the colour of the gold dust became brighter, indicating an improvement in the quality of the ore. Retracting their steps they proceeded up another branch of the Jugloo, and were joined by a party of gold-washers deputed by Dalton to collect specimens. They constructed two small embankments with bamboo and straw which divided the stream into three channels and enabled them to turn all the water into or out of the main channel. At the end of the day's experiments, he "made a rough estimate of the quantity of rubble washed, and on comparing it with the gold obtained, it gave about 18

[27] ibid.
[28] ibid.

grams to the ton and about 8 grains as the outturn of one man's labour for the day."[29]

Dalton examined the Sesa River as well, which also was on the north bank of the Brahmaputra. He said that the *raiyats* on the Sesa worked for gold in spots within a short distance of their own villages, which was a lucrative occupation for the months in which they could take time off from their agricultural activities. After the harvest of paddy in January, they formed gold-washing teams and started with provisions for a week or a fortnight. If they were fortunate, they could obtain sufficient gold to pay off their land revenue. It was said that in favourable localities and conditions, 20 grains of gold was not an uncommon return for one day's labour for three men operating a trough. After conducting similar experiments with the help of the *raiyats*, Dalton calculated that the work on one trough in the Sesa yielded only 11 grains of gold from one ton of sand, a rate pronounced by the gold-washers to be very "unfavorable". Thus in his estimation, the average production at this river was not more than 15 grains for every ton of sand washed. Judging the outcome of the experiments, Dalton concluded that the most productive rivers were the Subansiri and Dibong, whose yield varied annually between a seer and a half to two seers of pure gold, while the Brahmaputra and Dibong were said to produce half a seer to three quarters. The total annual yield of the Lakhimpur district was no more than about ten seers. Each river was worked by the gold-washers who lived nearest to it, but the number of people in the occupation in comparison to earlier times had dwindled.[30] This matches the calculation of Captain Hannay, who also estimated that the districts of Lakhimpur and Sadiya produced ten seers of pure gold in 1851-52, and the *Kayah* or the Marwari traders bought it from the producers at Rs.14 to Rs.15 per tolah of solid gold.

The colonial state recognised the need for continuing the profession of gold-washing, and farmed out leases parts of rivers for this purpose. However, by the mid-nineteenth century, it was obvious for them that the importance of this work

[29] ibid.
[30] ibid.

for the subjects in general and even the erstwhile Sonowals in particular had declined considerably. In a communication to the Board of Revenue at fort William about the "poll and gold washing taxes" in November 1859, the Commissioner of Assam noted that the streams where gold was known to be found were farmed out annually as *mahals* or estates to the highest bidders. Nevertheless, the revenue generated under this head had reduced to such insignificance that though it was hitherto considered as a source of fixed revenues, the district collectors now proposed that these *mahals* could without detriment be transferred to miscellaneous headings.[31]

So when the British government expressed its keenness to revive the old practice and profession of gold-washing in the rivers of Asom in 1870s, the question to be addressed for the government was whether the quantity and value of the product justified the amount of labour to be employed or not. As an official Circular in 1876 noted,

> The question whether gold is to be found in this Province in sufficient quantity to recompense the labour necessary to extract it has lately attracted the attention of the Chief Commissioner. It is an historical fact that at one time a great many of the streams of Assam, particularly those flowing from the Himalayas, yielded gold in considerable quantities. But with the increased value of labour, caused mainly by the introduction and expansion of the tea industry, gold-washing became unprofitable. Within the last three years, the relative values of gold and silver have considerably altered, and the methods are practiced now for extracting gold which were unknown to the native gold-washers.[32]

The then Chief Commissioner of Assam in 1876 considered that it would be a matter of regret if the tradition of former gold-washing operations were allowed to die out, since by doing so, "An important item of possible wealth to the

[31] Francis Jenkins, Commissioner of Assam, to E. J. Biver, Secretary to the Board of Revenue for Lower Provinces, Fort William, Letter No.112, 25 November 1859, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1859, ASA.

[32] *Memorandum on the former Gold-washings in the Assam Valley Streams*¸ Circular No.81, 25 October 1876, No.3666R, *Gold-washing in the Assam Rivers*, Pre-1874 Index, ASA.

Province might thus perhaps be lost sight of."[33] As such, the collectors of all the Brahmaputra Valley districts were directed to report on "what localities the industry was pursued, in which of them the best yield was obtained, the method adopted, and the taxes which were paid by the washers to the native Governments for the several streams. The amount of taxation or washing fee paid for each stream would probably be the best indication of its value."[34] From the replies from district officers to this government circular of 1876, it was clear that only in Darrang, Lakhimpur and Sibsagar districts in the Valley gold-washing was carried out in any quantity. In Darrang, an entire establishment consisting of Ahom state officials such as Hazarikas, Saikias, and Boras organised and oversaw the *paiks* who were engaged in gold-washings. The Hazarikas were required to present to the Ahom Raja a certain quantity of the gold annually from their respective jurisdictions, and in case of default they had to pay a penalty in the sum of Rs.18 for each of the *paiks* they employed on behalf of the state. The Darrang collector further reported that after the occupation of the Assam Valley by the British, the Charduar and Noduar *mahals* were regularly leased out every year for gold-washing operations, as was the case with fishery *mahals*. However, "The leases of these mahals used to be put up to auction; but the price they fetched gradually becoming less and less, they have not been offered for sale since 1865-66."[35]

The collector of Sibsagar reported that in that district gold-washing was chiefly carried on in the Desai River under the Jorhat subdivision. It was found that there were only four remaining villages inhabited by the descendants of the Sonowals in the entire district.[36] The commissioner also reported his conversation with an old man at Jorhat who could remember the times when they were engaged in this occupation. The man told that his village had long abandoned the vocation of gold-washing as it was not remunerative enough, and for those who did not engage in cultivation, there were better alternatives of making a living by working as labourers in the tea gardens where they were able

[33] ibid.
[34] ibid.
[35] ibid.
[36] ibid.

to earn more than by engaging in their traditional occupation. Nevertheless, it is difficult to verify how many of the former gold-washers took up tea-garden work as labourers as a "better alternative", considering all evidence indicate their falling back on cultivation once gold-washing became non-remunerative.

In Lakhimpur district, gold-washing appeared to have been extensively pursued, where the waters of almost every river was washed for gold. The principal rivers containing auriferous deposits were Lohit, Dihang, Dibong, Upper Dihing, Noa Dihing, Buri Dihing, Dikrang, Ranga Nadi, Jaising and the Subansiri, all of which were tributaries of the Brahmaputra. According to the information of the Lakhimpur collector, no additional tax was collected from the gold-washers other than what was charged from the *paiks*, though they paid this tax in gold.[37] The officer considered that this was not a profitable industry for its workers, and only because of compulsions imposed by the king that they continued with this vocation, and with the fall of the Ahom regime, this work also declined drastically. In his estimate the earning for each man per season ranged between a meager 4 annas to 12 annas, considered to be a very low rate even at that time. Even though the leases for gold-washing *mahals* in Lakhimpur were continued to be farmed out till as late as 1874-75, the sale proceeds fetched a nominal annual sum of only Rs.7. The most productive river was the Subansiri, and nearly two hundred men used to wash for gold by this river. But though the volume of gold extracted was considerable, with a single party of washers collecting as much as three-quarters of a *seer* of gold in a single season, the work was unprofitable. The causes of this occupation becoming unprofitable were multiple:

> The right of washing was ordinarily purchased by one of the amlah, or by some hanger-on about the courts, who rackrented it to the actual washers. The price of quicksilver, which was indispensable in the industry, was about Rs.3 or Rs.4 per tola weigh, and was all lost in the process. The price of gold in the bazar ranged from Rs. 14 to Rs. 12 per tola; but the washers had to subsist on advances

[37] ibid.

obtained at ruinous rates, hypothecating their estimated outturn of gold for the season at from Rs.8 to Rs.10 per tola.[38]

Very few new gold-washing and prospecting leases were applied for or sold by the end of the nineteenth century. In a communication to the Government of India, the chief commissioner of Assam informed that one Scott-Campbell of Dibrugarh was granted a gold-washing lease for ten years to wash for gold in the Subansiri River and its tributaries within British territory in the district of Lakhimpur on a rental of Rs. 10 per annum in 1882. The commissioner rued, "This lease was given in the hope that Mr. Campbell would examine the rocks carefully and get out machinery, but as a matter of fact Mr. Campbell has done nothing in this direction".[39] As a result, his recent application for a renewal of the lease for another term of ten years was turned down. Only one prospecting license was granted in 1893 to the Planters' Stores and Agency Company Limited of Calcutta for prospecting the possibilities of gold-washing in the rivers of Lakhimpur district on a nominal annual tax of Rs.10.[40]

A few months after the turn of the nineteenth century, F. E. Winsland and G. W. Sutton of Assam and London entered into an agreement with the Government of India for an annual license for prospecting gold in a stretch of the Subansiri River in Lakhimpur district on payment of Rs.100 as license fee. The license earmarked the area to be "The stretch of river Subansiri between the point known as Gogamukh three miles below the Pathalipam tea estate and the point crossed by the new Inner Line at the entrance to the gorge of the Subansiri river about 10 miles in length and the lands lying in either bank of the river within hundred feet of the river."[41] The rent agreed upon was Rs.100 per annum, and the rate of royalty on the gold to be collected was 5 percent on the value of gold extracted, while one *tola* was allowed to be taken free of cost. The farm wrote to the

[38] ibid.
[39] ibid.
[40] F. C. Daukes, Secretary to the Chief Commissioner of Assam, to the Secretary to the Government of India, Revenue and Agricultural Department, No.3666R, 19 September 1891, *Gold Washing in the Assam Rivers*, Pre-1874 Index, ASA.
[41] F. E. Winsland to the Subdivisional Officer of North Lakhimpur, Joyhing, 2 February 1901, 'Grant of A License to Messrs. F. E. Winsland and G. W. Sutton to Prospect for Gold in the Subansiri River in the North Lakhimpur Subdivision', Assam Secretariat Proceedings, Rev.-A, June 1902, ASA.

government in February 1901 that small experimental washing of gold was started in the designated stretch of the Subansiri. But it found that the part of the bed of the river nearly a mile below Gogamukh was better suited for the method of washing employed. The farm therefore requested the government to extend the licensed stretch of the river one mile below Gogamukh till Hessamara, and it was readily agreed upon.[42] The farm applied in January 1902 for an extension of their license for the Subansiri for one more year, and also applied for similar licenses to work on the Dihong and Noa Dihing rivers. However, the experiments carried out in the subsequent months turned out to be disappointing for the prospectors. Applying for a cancellation of the Subansiri lease and also declaring its intent to withdraw the applications for the other two rivers, F. E. Winsland, one of the proprietors of the company wrote to the government in March 1902 that in the last two months

> Our syndicate have been able to secure the services of a New Zealand gold-mining expert named Harris, who is just now in Assam prospecting for minerals. This gentleman has carried out the work we intended importing a man to do next cold weather, and I much regret to say that his report is unfavourable to the prospect of gold dredging by machinery on the Subansiri river. I now, therefore, beg to withdraw on behalf of Mr. Sutton and myself from the license already granted… I also wish to withdraw my application for a license, made to the Deputy Commissioner of Dibrugarh on the 16th January 1902, for the Dihong and Noa Dihing rivers.[43]

With such reversals, it is not surprising to find what the Annual Administration Report of Assam for 1911-12 reported, "Considerable amount of sums were expended on the exploration of the rivers of the Lakhimpur district; but gold was not found anywhere in paying quantities, and no return was obtained on the

[42] Memo. by the Officiating Commissioner of the Assam Valley Districts, No.411LR, Gauhati, 25 February 1901, 'Grant of A License to Messrs. F. E. Winsland and G. W. Sutton to Prospect for Gold in the Subansiri River in the North Lakhimpur Subdivision', Assam Secretariat Proceedings, Rev.-A, June 1902, ASA.

[43] F. E. Winsland to the Assistant Commissioner of North Lakhimpur, 12 March 1902, 'Grant of A License to Messrs. F. E. Winsland and G. W. Sutton to Prospect for Gold in the Subansiri River in the North Lakhimpur Subdivision', Assam Secretariat Proceedings, Rev.-A, June 1902, ASA.

capital embarked in the venture."[44] This was as good as the fall of curtains as far as the old industry of gold-washing in Asom was concerned.

Why was this decline? It would be too lame an explanation to agree with the colonial explanations for the decline, who argued that the Sonowals were coerced by the obligations of the Ahom State to supply gold, and as soon as this obligation was nullified by British rule, they all fell back upon cultivation. This was a convenient justification for colonial policies that harmed and even destroyed indigenous crafts, guilds and industries. The material available does not offer itself a conclusive argument, and one need to probe into certain socio-economic transformations that were underway much before the colonial conquest of Asom. Under the prevailing feudal production relations, the Sonowal *paiks* produced gold for the nobility and the king, and there was hardly a market developed for gold which could sustain its independent production. In addition, the rate of taxation was higher than an ordinary *paik*, and the high cost of raw materials such as quicksilver left very little for the sustenance of the primary producers, so much so that they had to depend on cultivation even when gold-washing was widely practiced during the medieval period. All these factors prevented gold-washing to emerge as an independent branch of industry in Asom, with a division of labour that would allow gold-washers to become a separate class. They were none but peasants who took up this work seasonally and under royal obligation, with hardly any accumulation of capital made possible by the prevailing conditions of production. That gold-washing in Asom's rivers was indeed a commercially non-remunerative profession without state's patronage, was proven by the latter-day attempts at capitalist production of gold by mercantile companies. Even with highly favourable terms of license offered by the colonial state along with other encouragements, there were to be no gold-rush in Asom.

[44] *Report on the Administration of Assam for the Year 1911-12*, Shillong: Assam Secretariat Press, 1912, p.27.

Fishing and the Fisher-folk

While the practice of gold washing gradually perished in the course of the nineteenth century, that of fishing continued to be an integral part of rural life in the Brahmaputra valley. Fish constituted a common and familiar source of food, and fishing a familiar activity that for some sections of the society supplemented the other pursuits of livelihood. With the numerous rivers and water bodies in the Valley, fish was never considered to be in short supply, though the colonial government's policy of leasing fishery *mahals* restricted the common use of many of such sources.

The Census of Assam in 1881 recorded that there were 69,404 persons engaged in fishing in the province (which included Sylhet), of whom 50,981 were male and 18,423 were female.[45] The Census noted that the word 'Kewat' or 'Keot', designated to a fishing caste, appeared to be a "corrupt" form of Kaibartha, "the name of a caste… mentioned in the Laws of Manu as fishermen by occupation." As per this report, the Kewats or Keots of Asom were held to be one of the respectable *sudra* castes, who form a large proportion of the peasantry. In western Asom districts, a distinction was noted between *halwa* and *jalwa* Keots, the former designating the peasantry and the latter fishermen. The existing caste-based social hierarchy assigned the former a superior status than the latter. Around central Asom, this distinction is replaced by the one between Great and Small Kewats, the latter being mostly washermen. No such distinction appeared to have existed among the Keots in the eastern Asom districts.[46] That year's Census figures showed the number of 'Kaibarthas' in the Brahmaputra Valley as 105,317 persons, a growth from 93,487 in 1872.

In its reference to the 'Doms', a caste with fishing as its assigned occupation, the Census of 1881 downplays their marginalised status and forms of caste-based exploitation. "The Assamese Dom is usually a fisherman. Though of an inferior caste, he is not regarded, as in Upper India, with contempt and aversion, nor does he perform any menial and disagreeable offices." The report claimed this to be

[45] 'Occupations', *Report on the Census of Assam*, *1881*, p.118.
[46] 'Castes and Tribes', *Report on the Census of Assam*, *1881*, p.94.

evidenced by what it perceived to be their "exceptional degree of ceremonial purity" or their ability to object to carry a load of fowls.[47] The large section of the 'Doms' who were the followers of the Mahapurushia belief, i.e., disciples of *satras* or Vaishnavite religious institution which traced their origin to Sankardev, was said to "carry their punctiliousness so far as to refuse to eat, except in clothes specially reserved for that purpose, or still wet from the bath." This was in spite of the fact that during the late Ahom period, from the middle of seventeenth century when Brahmanical Hinduism was predominant, the *nadiyals* were said to be marked in the forehead with the symbol of a fish for identification, so that they could be easily differentiated from the dominant castes.[48] Of the boatmen who plied the rivers of Asom with their country-boats, the chief commissioner Hopkinson reflected the all-too-common complain reserved to all the laboring classes of the Valley, "the Assamese Dooms, notwithstanding their increase of pay, are just as unwilling to work as ever, and are still, to all intent ands purposes, impress."[49]

The members of the caste held the appellation 'Dom' in contempt, and preferred to be called as Nadiyals or Kaibarttas. In eastern Asom, though the differentiation within the caste was reported to be absent and the "whole caste seems to be on an equality", in Kamrup a distinction was said to prevail between the "*halwa* Doms" who pursued agriculture, and the "*jalwa* Doms", who followed their occupation and trade in fishing. The former was considered to be more honourable.[50] The people who returned their caste as 'Doms' were counted to be 68,620 in 1872 and 96,779 in 1881 in the Brahmaputra Valley. The transition of the Nadiyals as a fishing community to that of an agrarian one was observed by the Settlement Officer of Nowgong, who stated in 1930,

> There is a growing disinclination amongst the Nadiyals to sell fish. They now style themselves *Kaibarttas* and aspire to rise in the social scale by giving up

[47] *Report on the Census of Assam*, *1881*, 'Castes and Tribes', p.94.
[48] Medini Chowdhury, 'Asom Andolan aru Janagosthigata Samasya', in Hiren Gohain and Dilip Bora eds., *Asom Andolan: Pratisruti aru Phalasruti*, Guwahati: Banalata, 2002, p.243.
[49] E. H. Larsington, Secretary to the Government of India, Financial Department, to the Secretary to the Government of Bengal, No.2792, Simla 30 September 1867, File No.96G, 1871-74, Goalpara Papers, ASA.
[50] *Report on the Census of Assam*, *1881*, 'Castes and Tribes', p.95.

> their hereditary profession. This is a lucrative business which is passing into the hands of the East Bengal fishermen who come in large numbers in the cold weather to work the *bils* and rivers.[51]

Sydney Endle, writing about the fishing practices of the Boro tribal communities of the Darrang district on the North bank of the Brahmaputra, noted that community fishing was the most popular form of catching fish among them. The leading part was commonly taken by the women of a village or sometimes a group of villages on certain prearranged dates, who would fish a particular stream or a number of streams for a distance extending over several miles. The fishing tools used were very simple, and were commonly prepared from materials found in almost every village. Nets were rarely employed, since the hill-streams in which the fishing was conducted remained very shallow in the fishing season of winter, rarely exceeding two or three feet in depth. Two implements were commonly used: the *zakhāi* and the *pālha*, the former being employed chiefly, but not exclusively, by women, while men used the latter more frequently.

Both implements were prepared from split bamboo-work fastened together with cane. The *zakhāi* was a triangular basket, open at one end, the three triangular sides closing in to a point. It was provided with a bamboo handle some three or four feet in length. While fishing collectively, a number of women together entered the river with this *zakhāi*, spanning across the entire width of the stream. Another group similarly lined up fifty or hundred yards away, facing the other. The two groups then worked steadily towards each other, trapping the fish in between. A spear with a pointed metallic spearhead attached to a light bamboo was also used for fishing. This was thrust rapidly and firmly into the soft mud or other places where fishes and eels were supposed to be concealed.

[51] 'Assessment Report on the North-Western Group (Nowgong District)', Memo by S. N. Datta, Settlement Officer, Nowgong to the Director of Land Records, Assam, No.393S, Nowgong 31 October 1930, Assam Secretariat Proceedings, Revenue Department, No.140-155, Rev.-A, September 1931, ASA.

Apart from the 'traditional' forms of fishing as discussed above, there were other, more 'modern' forms of fishing allegedly practiced by some Naga villagers on the River Buri Dihing (name given by the Assamese)/Namphuk (called by the Nagas) beyond the Lakhimpur Inner Line – by bombing with dynamite. The survey party tasked to extend the Lakhimpur Inner Line to include the newly discovered oil springs within the Regulation Area in 1914, reported of coming across a place near Magantaum where the River Buri Dihing/Namphuk "had been bombed for fish." It was suspected by the survey party that the Nagas got the dynamite "by theft from coal mines to use for the purpose."[52] It was not clear how the "stolen" dynamite reached the Nagas, nor the identity of those who were involved in this presumed "theft". The surveyor C. M. Thompson nevertheless suggested that the bombing be stopped in order to save the hundreds of smaller fish which were left dead in the process.

There was also some amount of commercial fishing among the tribal communities in the first decades of the twentieth century, primarily on dried fish. Small fish were left on the surface after the annual floods had subsided, which was then collected in large quantities near the banks of the Brahmaputra and carried to the Duars, where it was bartered for rice, silk and other commodities.[53]

Commercialisation of Fishing

In 1835, nine years after the occupation of Asom by the British East India Company's government, the district collector of Darrang noted that there were six extensive lakes or *jheels* which were auctioned to the highest bidders as fisheries at Rs.155 per annum.[54] The right to fish in the Brahmaputra River, designated a *jalkar mahal*, was separately farmed for Rs.135 per annum. The

[52] C. M. Thompson, 'Narrative Report on the Demarcation of the Newly Proposed Extension of the Lakhimpur Inner Line Boundary', Assam Secretariat Proceedings, Revenue Department, Rev. Misc.-A, April 1914, ASA.
[53] Sidney Endle, *The Kacharis*, Delhi: Low Price Publications, 1997 (1911), pp.15-16.
[54] Lt. James Matthie, Principal Assistant to the Governor General's Agent, Collector and Magistrate of Zilla Darrang, to Captain Francis Jenkins, Commissioner of Assam, 15 February 1835, File No. 298, Bengal Government (B.G.) Papers, ASA.

lessee thereafter taxed each net used on the Brahmaputra according to their size and capabilities, which was said to be as per the custom under the Ahom government.[55] The Commissioner of Assam informed the Bengal government in 1859 that the fisheries in the five districts of "Assam Proper", or the Brahmaputra Valley, i.e., Goalpara, Darrang, Kamrup, Nowgong, Sibsagar and Lakhimpur, were farmed out annually through public auctions.[56]

A question as to whether the *mauzadars* or the revenue collectors of Asom were to be allowed to participate in government's auction of fisheries was debated within the colonial bureaucracy in 1904, resulting in divergent opinions. Forwarding the replies of the district officers on the issue, the commissioner of the Assam Valley Districts wrote to the chief commissioner of Assam that there was a strong opinion against allowing the *mauzadars* to bid for fisheries. He argued that the position and influence of the *mauzadar*, who was in effect considered to be a government servant and the head of a *mauza*, would give him an unfair advantage over others. However, no objection was raised to their taking settlement of fisheries outside their own *mauzas* in "rare cases in which they might wish to do so".[57] The Deputy Commissioner of Sibsagar reported that no fishery was settled with the *mauzadars* in the district, nor were they allowed to bid for them. He considered it undesirable that there should be any change of the existing practice.[58] The Goalpara Deputy Commissioner gave a more detailed explanation:

> The mauzadars do not take leases of the fisheries in this district. The fisheries in the temporarily settled estates being small and unimportant, the mauzadars do not care to take lease for them. …I am decidedly of the opinion that the mauzadars should be allowed to bid for, and take leases of, fisheries within their

[55] ibid.
[56] Francis Jenkins, Commissioner of Assam, to E. J. Biver, Secretary to the Board of Revenue for Lower Provinces, Fort William, Letter No.20, 13 June 1859, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1859, ASA.
[57] P. G. Melitus, Commissioner of the Assam Valley Districts to the Chief Commissioner of Assam, No.1057 LR, Gauhati 8 April 1904, Assam Secretariat Proceedings, Revenue Department, Rev.-A, September 1904, ASA.
[58] Major H. W. G. Cole, Deputy Commissioner of Lakhimpur to Commissioner of the Assam Valley Districts, No.2813R, Dibrugarh, 19 January 1904, Assam Secretariat Proceedings, Revenue Department, Rev.-A, September 1904, ASA.

> mauzas. Only in the case of very small fisheries is the lease ever taken by the man who actually fishes the fisheries. In nearly every case the leaseholder sublets his fishery and does not work it himself, and personally I see no objection to this procedure. The ordinary fisherman is certainly not in a position to take a lease of a large fishery, the average fishermen belonging to the very poorest of the poor and having no capital whatsoever. The presence of the middleman renders the realization of the government revenue far easier. I therefore see no objection to allowing the mauzadars to take leases of fisheries in their mauzas and would rather encourage it.[59]

None of the Deputy Commissioners of Nowgong, Darrang and Kamrup, however, echoed this proposition of allowing mauzadars to bid for fisheries within their *mauza*. Given this overwhelming opinion, the Chief Commissioner directed in June 1904 that *mauzadars* should not be allowed to bid for fisheries.[60] This was the decision despite his opinion expressed the previous year that "Generally the Chief Commissioner would not be disposed to any action which would lessen a mauzadar's income, especially when (as in the case of Barpeta mauzadars) they have suffered a severe loss of profit on their land revenue collections."[61]

In the early decades of the nineteenth century, the colonial government did not consider the revenue from the leasing of fisheries to be an important source of income. In certain regions, the topography did not allow for substantial fisheries to be considered suitable for public sale. As the *District Gazetteer* of Darrang published in 1905 reported, there was a steady recline in the level of the land towards the Brahmaputra, with little propensity of the surface water to collect in lakes and marshes. Therefore, "In the whole of the Sadr subdivision there are only three bils of sufficient size to justify their being sold as public fisheries, and in Mangaldai there are but six. These bils are shallow pools of no great extent

[59] A. H. Cuming, Deputy Commissioner of Goalpara to Commissioner of the Assam Valley Districts, No.3110G, Dhubri, 20 January 1904, Assam Secretariat Proceedings, Revenue Department, Rev.-A, September 1904, ASA.

[60] Secretary to the Chief Commissioner of Assam to the Commissioner of the Assam Valley Districts, No.267, 2719R, Shillong, 17 June 1904, Assam Secretariat Proceedings, Revenue Department, Rev.-A, September 1904, ASA.

[61] Secretary to the Chief Commissioner of Assam to the Commissioner of Assam Valley Districts, No.880Misc.-5232R, Shillong 19 December 1903, Assam Secretariat Proceedings, Revenue Department, Rev.-A, September 1904, ASA.

which form depressions in the lower parts of the district, generally near the Brahmaputra."[62]

Protecting Fish from the Fishermen: Colonial Conservation in Early Twentieth Century

The question of protecting fisheries on rivers flowing out of forested hills was actively considered by the colonial authorities in Asom after what was reported to be a very severe destruction of fish in the Jia Bhorali River in Darrang district in 1915, pushing up the already high market price of fish. The district officials were at a loss to find the causes behind the destruction of not only those species considered to be sport but of all kinds of fish. The fact that blood-slides and viscera of some of the dead fish subjected to microscopic examination did not reveal any trace of poison prompted the government to conclude that the damage was "not attributable to any known agency".[63]

As 'remedial measures', the Commissioner of Assam Valley recommended, echoing the Deputy Commissioner of Darrang, that steps needed to be taken to reserve some of the main tributaries of the Jia Bhorali in its higher reaches. The rivers and tributaries identified were Mansiri, Bordikrai, Khari Dikrai, Upar Dikrai, Daigraon, and Namiri. Of these the first two were considered to be the most urgently requiring reservation, since they were claimed to be "more exposed to poaching", while Khari Dikrai and and Namiri were said to be "exposed to trapping etc. from travelling hill-men" even though they were both within the limits of reserved forests. There were many other "nameless" tributaries of Jia Bhorali that existed on the hills, and it was proposed that they be mapped, numbered or named, and "conserved" like the others, if their protection was felt necessary by the higher authorities.[64] These efforts of the second decade of the twentieth century were among the first instances of colonial attempts at 'conservation' of fish in Asom.

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[62] B. C. Allen, *Assam District Gazetteers*, Vol. V, Darrang, Allahabad: Pioneer Press, 1905.
[63] Lt. Col. P. R. T. Gurdon, Commissioner of Assam Valley Districts to Secretary to the Chief Commissioner of Assam, No.826C, Camp Nowgong 19 July 1915, Assam Secretariat Proceedings, Revenue Department, Misc.-A, September 1915, ASA.
[64] ibid.

The orders of the Chief Commissioner were prompt. The district officers as well as the Political Officer of the Western Section, North East Frontier were directed "to warn the hillmen from setting weirs or traps in the Khari Dikrai and the Mansiri which fall within the forest reserve", and to consider "the feasibility and desirability of restraining hillmen from using weirs, traps and dams which are likely to have a prejudicial effect on the fish supply in the various rivers and streams issuing from the hills."[65] It is worth noting that while the government was keen on protecting the fish supply on these rivers as Jia Bhorali, almost all of its tributaries were leased out in the plains for fishing. The restrictions were at the expense of the "hillmen" and villagers who inevitably were termed as the "poachers" of fish. To what extent the colonial government could in reality impose its writ of "conserving fish" under the Fisheries Act IV of 1897 on its loosely administered frontier tracts and the tribal communities of the hills, however, is a matter of conjecture, even though instances of prosecution and punishment under the law for the "crime" of fishing now made "illegal" was not uncommon.

The enthusiastic approval of the proposal for reservation of the upper riparian tributaries of the Jia Bhorali to protect them from "poachers", "trappers" and "hillmen" by the Chief Commissioner of the province was predicated by the government's need to keep the main rivers in "fair supply of fish". He also emphasised that there was no practical benefit of reserving rivers "if netting, the erection of dams and fixed engines are allowed", and ordered these to be also prohibited on the notified rivers. The only *concession* the government was ready to concede to the riparian villages was to fish with rod and line in the reserved tributaries of Jia Bhorali.[66] The Political Officer in charge of the Western Section of the North Eastern Frontier replied to the Chief Commissioner almost immediately in August 1915, to say that

[65] B. C. Allen, Chief Secretary to the Chief Commissioner of Assam to the Political Officer, Western Section, North Eastern Frontier, No.3300R, Shillong 9 August 1915, Assam Secretariat Proceedings, Revenue Department, Misc.-A, September 1915, ASA.

[66] A. Phillipson, Under Secretary to the Chief Commissioner of Assam to the Commissioner of Assam Valley Districts, No.3391R, Shillong 12 August 1915, Assam Secretariat Proceedings, Revenue Department, Misc.-A, September 1915, ASA.

> both the rivers mentioned, viz., the Khari Dikrai and the Mansiri were fully looked after last season. No traps were set in either rivers; 19 persons were punished for fishing in the Mansiri within the forest reserve. The Bor Dikrai is the only tributary of the Bhorelli that is worth fishing, the upper reaches of the streams are untouched but the lower reaches are much trapped by the Nepaulis and Miris living on the Darrang bank of the river (the river divides Darrang from the Forest Tracts). Last year I warned these people and destroyed their traps. The hill Daflas fortunately for us very rarely goes in for trapping fish, I cannot remember a single instance of having seen a trap by a hill Daffla. I do not think that in any of the rivers in my district, the hillmen does much harm.[67]

The Political Officer asserted that the "Miris" and "Assamese Doms" were responsible for nearly all the trapping on rivers, while in the plains "Dafflas" were also said to have learnt the art of fish-trapping from the Mishings. Further, he informed that "The trapping is done usually by the plains people at the foot of the hills. For instance, I am told, that in the cold weather the Miris living on the Subansiri…are out most night with flares and nets." The reporting of fishing in the Subansiri River, not under the charge of this political officer but in Lakhimpur, prompted the Chief Commissioner to immediately send a directive to the Commissioner of Assam Valley Districts to look into "certain malpractices prevailing on the Subansiri and… to take steps to put a stop to them."[68] Subansiri, like many other rivers aforesaid, were already made inaccessible to a large section of the inhabitants of the Brahmaputra Valley, for whom fish was not only an important ingredient of their diet, but also a means of livelihood.

Traps and such other modes of fishing were at the same time considered to be obstructions to the natural flow of rivers, accentuating their flooding during the monsoon season. Therefore, improvement of the river channel was said to be accomplished in the Namdang River in Sibsagar in 1906 by "the removal of

[67] Captain G. A. Nevill, Political Officer, Western Section, North Eastern Frontier, to Chief Secretary to the Chief Commissioner of Assam, Camp Mangaldai 22 August 1915, Assam Secretariat Proceedings, Revenue Department, Misc.-A, September 1915, ASA.

[68] J. C. Kerwood, Under Secretary to the Chief Commissioner of Assam to the Commissioner, Assam Valley Districts, No.3997R, Shillong 2 September 1915, Assam Secretariat Proceedings, Revenue Department, Misc.-A, September 1915, ASA.

fishing traps and other obstructions… thereby hastening the flow of that river."[69] Dams for fishing, however, were constructed not only on the hill streams, but also on the smaller rivers in the plains. These dams were opposed by the colonial government for accentuating the floods of the rivers. As the province's Executive Engineer of the PWD reported in 1903,

> Fishermen take annual leases for fisheries along certain channels. They put temporary bunds across each channel at short intervals, thereby raising considerably levels of water in that channel wherever they need. These *bunds* consist of stout bamboo and wooden logs as posts with horizontal bamboo tie. Behind these on the up stream side are placed fine split bamboo gratings and at the feet of these puddle clay, brushwood and other obstructions are given, so that water can only slightly flow out through the gratings, with the result that on the up stream side the water is at a standstill and higher by at least six inches to a foot than that on the down stream side where it flows with a strong current till it meets another obstruction. The channel thus consists of a series of rapids and still-water pools. Besides, all along the course, clumps of trees, 40 to 60 in number, giving a diameter of about 6 feet at bottom, are placed in the middle of the stream, with brushwood filled in the interior of clumps so as to allow fish to reside in them. These remain throughout the year and are not washed away even during high floods. Owing to these obstructions, silt is rapidly deposited in the intermediate spaces and the levels of water are raised to a very large extent, so much so that the low-lying country cannot get easily and rapidly drained on the subsidence of floods and remain submerged longer than is desirable for the transplantation of paddy. The Namdang river above Gaurisagar with its various tributaries and the Rupahi of the Rangghar pathar opposite Sibsagar may be taken as a good example of this kind. The clearance of these obstructions is therefore absolutely necessary for the free discharge of waters from the natural watercourses lying within the areas protected from the flood waters of the main rivers.[70]

[69] 'Assessment Report: Southwest Sibsagar Group', Proceedings of the Lt. Governor of Bengal, Revenue Department, February 1906, ASA.

[70] 'Note by Pandit Matadin Sukul, Executive Engineer, Public Works Department, Assam, on the protective embankments in sadr subdivision of Sibsagar district and portions of Sibsagar and Lakhimpur districts', Sibsagar 6 April1903, Nos.180-208, Assam Secretariat Proceedings, Revenue-A, September 1904, ASA.

The 1910s were also the period when declaration of rivers or its parts as 'fish sanctuaries' where spawning took place emerged as a colonial policy in Asom. This came in direct conflict with the government's need for revenue generation, with the interests of the fishery leaseholders, and also with and requirements of the inhabitants of the Valley and its surrounding hills through which the rivers flowed. This notion of conservation, however, should not be confused with its more contemporary meaning, i.e., protection of endangered species in order to facilitate their regeneration so as to save them from extinction. The government authorities sought to protect the fish-spawns so that the supply of fish for the market did not diminish. This particular aspect of the conservationist outlook of the colonial state is well expressed in the words of the Chief Commissioner of Assam, who noted in November 1914,

> It must be remembered that fish in this country are practically not protected at all, as they are in England and other countries. It is true that the law forbids them being destroyed by dynamite, explosives, or poisonous substances, but there are no fishing seasons, no protection of spawning grounds, no regulations as to the meshes of the nets, and so on. In short, it may broadly be stated that fish in the country are the helpless prey of man, bird and otter, and that, were it not for their extreme fecundity, the consumer by this time would have been in a very bad case.[71]

In order to identify and declare as fish sanctuaries those rivers of Asom which were considered to be important for fish spawning, reports were asked by the colonial government from the district officers in early 1914. Fully agreeing to the desirability of this step, the Commissioner of the Assam Valley District noted that it was not only net-fishing which had resulted in the "over-fishing" in some of the province's major rivers, but also the use of dynamites and poisons. He recommended a prohibition on both these means of fishing, while at the same time pointing out that the proposed fish-sanctuaries must not diminish the

[71] B. C. Allen, Chief Secretary to the Chief Commissioner of Assam, to the Commissioner, Surma Valley and Hill Districts, No.4605R, Shillong, 18 November 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA.

supply of fish to the market or infringe on the existing rights of the fishery leaseholders. The Goalpara district officer recommended the reservation of all the rivers of the Eastern Duars, among them the most important rivers in terms of fishing being Sankos, Aie and the Manas. The stretch of the rivers from the point they left the hills to where they entered the settlements under permanent cultivation, were sought to be reserved. Noting that fish had of late become rare after the earthquake of 1897 and also due to the "depredations" caused by *gharials* in the Manas River, the Deputy Commissioner of Kamrup suggested its reservation as a sanctuary. Further, the officer stated that Kalang River and its tributary Digaru also needed to be protected for their importance as fish-breeding grounds, where he complained that "much damage is done yearly by over-fishing by Doms and others with nets and various kinds of fish traps." Moreover, "Poisoning by Khasis in the upper reaches of these rivers should also be stopped as far as this is found possible," the officer noted.[72]

The 'illegal' fishing of the Kaibarrtas or Nadiyals as well as the Mishings who fished the Brahmaputra and its tributaries emerged as the main targets of clampdown for the colonial State by the early decades of the twentieth century. They were frequently accused of 'poaching' on the rivers and fisheries even when they held leases to government fisheries. The Political Officer, Central and Eastern Sections of the North-East Frontier, "warned" the "Dom lessees" of Dibrugarh and Sadiya in 1914 for "liberally interpreting" the boundaries of their fishery that spanned from the junction of Lohit and Brahmaputra to Dibrumukh. As per the government's allegations, they fished on the Buri Suti and its tributaries the Dijmur and Songkong rivers, which were said to be outside the purview of the lease. The Mishing villages inhabiting the banks of these rivers were directed to keep watch, and were made responsible for reporting to the government of any 'illegality' noticed to be practiced by the Kaibarrtas. This the colonial officials expected to be an easy way for preventing 'crimes' related to 'illegal' fishing, as their perception was that "Miris do not like Domes", and hence

[72] Col. P. R. T. Gurdon, Commissioner of the Assam Valley Districts to the Under-Secretary to the Commissioner of Assam, Revenue Department, No.55C, 14 February 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA. See *Appendix I* for the district-wise list of rivers in the Brahmaputra Valley proposed for reservation as fish-sanctuaries in 1914.

"They will make most efficient water bailiffs and prevent poaching."[73] In addition, the government accused the Kaibarrtas of completely emptying the cross-channels between the Dihong and Dibong rivers of fish by netting indiscriminately, as these channels were considered to be good spawning grounds.[74]

The tribal villagers of the hills and their fishing methods were seen as opposed to the interests of fish breeding, as can be seen in the Chief Commissioner's reference in February 1915 to the Someswari River the in the Garo Hills. He ordered that no fixed-nets of any sort be allowed to be used under any circumstances, nor nets be allowed to be placed across an entire stream. "This should be explained very carefully to the Garos, and if they then abuse the permission to use hand nets, the concession would be withdrawn", he noted.[75] In the same vein, it was alleged by government officials that the Nagas practiced fishing by using poison and by erecting weirs on the upper reaches of the fish-carrying rivers in the Naga Hills neighbouring Sibsagar district that flowed down to the Brahmaputra Valley, though they were "not sure that it is possible to prohibit the Nagas following their ancient customs in this respect."[76] Moreover, it was also admitted that these were the only modes of catching fish for the Nagas, and to prevent them from catching fish in this way was effectively to stop them from fishing entirely. However, colonial officials were "inclined" to impose this prohibition "in the interest of the general public."[77] For the State, the Nagas were always free to buy fish in the plains if they wished. At the same time, rivers such as Dikhow and Dayang in their course in the Naga Hills were closed for fishing by plains fishermen in 1914.

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[73] Note by W. C. M. Dundas, Political Officer, Central and Eastern Sections, North-Eastern Frontier, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA.
[74] ibid.
[75] A. W. Botham, Second Secretary to the Chief Commissioner of Assam to the Commissioner of the Assam Valley Districts, No.1030R, Shillong 5 March 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA.
[76] F. C. Henniker, Officiating Commissioner, Surma Valley and Hill Districts, to the Second Secretary to the Chief Commissioner of Assam, No.2929, Silchar 7 May 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA.
[77] H. C. Barnes, Deputy Commissioner, Naga Hills, to the Commissioner, Surma Valley and Hill Districts, No.2031G, Kohima 3 January 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA.

At the same time, the practice of preparing and consuming dried fish was presented as another evidence of wasteful and harmful ways of fishing by the hill communities in the early twentieth century, not to say of the prejudiced and pejorative colonial view of their dietary habits. In the words of the Chief Commissioner,

> It is one thing to eat fish fresh, as we see eaten in the plains… It is quite another thing to see fish eaten dried. Such fish has lately been termed by the Sanitary Commissioner as 'foul dietary', and we need not be sorry to see its supply diminished. Dried fish is often the result of a temporary excess of supply owing to extravagant and wasteful slaughter of fish in the pools in the hill sections.[78]

One of the main reasons for the colonial opinion against the customary modes of fishing was that these were seen as wasteful and detrimental to the interests of conservation of fish. A case in point was the method of catching fish by temporarily damming the hill streams and rivers practiced by the tribal communities on the hills surrounding the Brahmaputra Valley. Colonial officials and observers frequently complained against these dams, alleging that such a method blocked the path of fish travelling upstream for spawning, even though it was a common knowledge that only smaller streams were dammed for this purpose. This view was reflected in the note prepared by W. C. Dundas on the fisheries in the North-East Frontier Tract in the second decade of the twentieth century. He noted that dams for fishing "are usually built in September or October just before the streams fall, and are carried away by the first flood in April. These dams may stop spawning fish going up the smaller streams, but for the same reason they do not catch many of them."[79]

This view, however, was incorrect. The Chief Commissioner, questioning the validity of Dundas's observations, remarked, "The point seems to be the other way on. The fish go up to spawn in spring and return after spawning in

[78] N. E. Parry, Under Secretary to the Chief Commissioner of Assam to the Commissioner, Assam Valley Districts, No.1489R, Shillong 2 April 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA.
[79] ibid.

September and October. What happens therefore is that fish which have spawned in the upper reaches of these small streams are caught on their way back in September or October."[80] P. R. T. Gurdon, the Commissioner of the Assam Valley Districts too contradicted the above opinion and observed that the fishing dams were built to intercept on their way down to the lower reaches after spawning and not on their way up the river to spawn. Fish were caught in this manner only by the end of August of early September, while the fish's spawning season was during April and May. He therefore concluded that "The dams therefore do not affect the movement of the fish going up to spawn."[81] The truth in no way diminished the criminalization of the tribal communities like the 'Dafflas' or the 'Miris', or the oppressed caste-groups such as the 'Doms' by the colonial government.

The possible loss to the government treasury as a result of declaring certain rivers of Asom as fish-sanctuaries in 1914, where rights were leased out as fisheries for revenue, was also assessed.[82] It was calculated that as a result of adopting this policy in the Brahmaputra Valley districts, revenue amounting to Rs.6587 had to be "sacrificed" by the provincial government.[83] Subsequently in November of that year, the colonial government in Asom proceeded to notify several rivers in the five Brahmaputra Valley districts to be reserved as fish-sanctuaries.[84] The need for setting up a separate mechanism in the future, equipped with sufficient staff to protect these reserved rivers, was also pointed out. The Chief Commissioner expressed doubt over the practicability of enforcing

[80] ibid.

[81] P. R. T. Gurdon, Commissioner, Assam Valley Districts, to the Chief Secretary to the Chief Commissioner of Assam, No.598, Gauhati 4 October 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA.

[82] N. E. Parry, Under Secretary to the Chief Commissioner of Assam to the Commissioner, Assam Valley Districts, No.1175R, Shillong 14 March 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA. The Chief Commissioner directed the Commissioner of the Assam Valley Districts to report "the amount of revenue will be sacrificed" if rivers were reserved.

[83] F. C. Henniker, Officiating Commissioner, Assam Valley Division, to the Chief Secretary to the Chief Commissioner of Assam, No.329Rev., Gauhati 26 May 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA. The district-wise break-up of this figure was as follows: Goalpara – Rs.555, Kamrup – Rs.4000, Darrang – Rs.397, Nowgong – Rs.200, Sibsagar – Rs.0, Lakhimpur – Rs.1245.

[84] B. C. Allen, Chief Secretary to the Chief Commissioner of Assam, to the Commissioner, Assam Valley Districts, No.4550R, Shillong 13 November 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA. See *Appendix II* for the list of rivers notified as fish-sanctuaries.

a strict compliance with the prohibition of fishing on these rivers in the absence of such a separate law-enforcement mechanism.[85]

The commercial leasing of water-bodies such as rivers, streams and *bils* etc. as fisheries constrained or even prevented their access by surrounding villagers, in spite of the condition put in the late nineteenth-century and early twentieth-century colonial lease-deeds that villagers could fish with lines and hook in such water-bodies for their own consumption, at times after obtaining passes from the lease-holder.[86] Complaints were made to the colonial authorities about the lessees of fisheries preventing villagers from fishing, or of charging them with a fee for issuing passes. The newspaper *Assam Banti* carried news of such practices in Darrang district in its 12 February 1904 edition, where it was reported that *raiyats* of Bihguri, Peithakhoa and Bahbari villages of Kamrup district requested the Chief Commissioner on tour that they be allowed certain concessions to access canes and fisheries, etc. In spite of the favourable verbal orders by the Chief Commissioner who declared the fisheries Diputa, Kholakat and Barakata to be 'free' for fishing, the newspaper complained, these were once again put for sale.[87] The Chief Commissioner also noted that he received "complaints of unfair treatment on the part of the fishery lessees who were reported to practically deny riparian villages the concession that is granted to them by condition 1 of the fishery lease, according to which a fee of 4 annas only is to be charged for each net or basket."[88] The lessees attempted to charge this fee from each member of a family that fished and were highly reluctant in issuing passing, the villagers complained. The colonial authorities were apprehensive that the fishery system might hardly work if such conditions were allowed to prevail, and unless

[85] ibid.

[86] Leasing of fisheries was also destroyed important sources of drinking water for villagers, and was opposed by them for this reason. A petition addressed o the colonial government in 1885 complained that "a large number of people [in Majuli, Sibsagar district] depend upon the fishery for their drinking water and the sale of the fishery for the purpose of catching fish deprives the ryots of the use of water for when the fishery is leased out the fisherman renders the water unfit for human consumption when they catch fish and this defiles the water." Brajnath Bezburoa, Member of the Jorhat Local Board, to the Secretary to the Commissioner of Assam, No.34, Jorhat 25 June 1885, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.

[87] 'Abstract Translation of A Letter Published in the "Assam Banti" of 12 February 1904', Assam Secretariat Proceedings, Rev.-A, February 1905, ASA.

[88] Secretary to the Chief Commissioner of Assam to the Commissioner, Assam Valley Districts, No.1133Misc.-5354R, Shillong 29 December 1903, Assam Secretariat Proceedings, Rev.-A, February 1905, ASA.

the lessees were warned that "breaches of the condition of their lease will entail a severe penalty." Moreover, it was also suggested that the auctioned fisheries in Asom which did not yield a certain minimum amount of revenue could be thrown open for free access to the villagers, so as to avoid the recurrence of such local disputes over fishing.

The Commissioner of Assam Valley Districts responded by saying that matters relating to conflicts over the lessees and "local fishermen" could be easily settled through the intervention of the district officers to ensure that the villager's rights were honoured by the lessees, and that no further action was necessary. On the second suggestion, the officer argued that there would be difficulty in having a prefixed money-limit below which fisheries were not to be leased, as small fisheries were leased in groups, and the "value of fisheries may change or circumstances may arise rendering it advisable to lease them."[89] He in turn suggested a mechanism through which the Deputy Commissioner was to be empowered to decline leasing out a fishery if the bid for it was less than Rs.50. In order to implement this new rule, every district officer of the Brahmaputra Valley was directed to report on the fisheries under lease in their districts, along with past complaints regarding the rights of fishing on leased fisheries, if any.

According to the report submitted by the Deputy Commissioner of Goalpara, 15 fisheries were under lease in 1904 in his district, and none generating annual government revenue above Rs.50, with most of the smaller fisheries settled for Rs.10. He suggested that all fisheries below Rs.20 be made open for the *raiyats*, the result being only a small reduction in the revenue.[90] Noting that there were indeed some complaints from the villagers in the past regarding the charge levied from them by the leaseholders in excess of 4 *annas* for each net for home consumption, the Deputy Commissioner of Nowgong informed that these were resolved with the intervention of the district officers. The officer, however,

[89] P. G. Melitus, Commissioner of the Assam Valley Districts, to Secretary to the Chief Commissioner of Assam, No.2665LR, Gauhati 20 August 1904, Assam Secretariat Proceedings, Rev.-A, February 1905, ASA.

[90] A. H. Cuming, Officiating Deputy Commissioner of Goalpara, to the Commissioner of the Assam Valley Districts, No.3399G, Dhubri 13 February 1904, Assam Secretariat Proceedings, Rev.-A, February 1905, ASA.

indicated that the villagers too used the ambiguously defined term "net" or "basket" to their advantage in order to fish with all sorts of fishing implements, and asked for a clearer description of the nets and baskets to be allowed for a 4 *anna* fee. He argued,

> There are different kinds of net; some are used for catching large fish and some for small fish. It is hard on the lessees to allow fishing by all kinds of nets throughout the year for annas four only. There is a kind of net locally known as porongoni jal tied to bamboo frames and thrown into the water from the shore. This kind of net can be used by all castes. I would suggest that by the word "net" only this kind of net should be allowed. Similarly, the word basket should include jakoi, polo, and juluki, and such other kind which the villagers (men and women) generally fish for home consumption.[91]

In Nowgong district, 24 out of 88 enlisted government fisheries generating an amount of Rs.14,653 as revenue were proposed to be made open for 'public' in 1904, and the revenue loss of Rs.372 was held to be nominal compared to the expected advantages to the *raiyats* and the relief to the colonial state from recurrent petty disputes. The Darrang district official reported that the complaints made against lessees were mainly from "professional fishermen" belonging to the "Doms" or Kaibarttas, and the disputes were usually about the amount to be paid to the lessees for issuing passes to fish. Efforts were made to facilitate the access of the riverine Mishing villagers to the leased fisheries for the home consumption of fish, and also to stop the poisoning of rivers as a means of fishing.[92] The government proclaimed that attempts to settle small fisheries with Kaibartta fishermen was not going to succeed, and what the latter also demanded was only the protection of the concessions they enjoyed in fishing the leased water-bodies. It also rejected the suggestion of clearly defining the fishing implements allowed for availing the concession, as it was felt that such

[91] Major H. M. Halliday, Deputy Commissioner of Nowgong, to the Commissioner of the Assam Valley Districts, No.1422R, Nowgong 19 February 1904, Assam Secretariat Proceedings, Rev.-A, February 1905, ASA.

[92] D. H. Lees, Deputy Commissioner of Darrang to the Commissioner of the Assam Valley Districts, No.339R, Tezpur 14 May 1904, Assam Secretariat Proceedings, Rev.-A, February 1905, ASA.

restrictions would rather curtail the concessions of the villagers than enhancing them.[93]

A review of the colonial government's approach towards fishing and the fisher-folk in late eighteenth and early nineteenth century Asom clearly indicates that commercialisation of fishing came into direct conflict with the interests of the *raiyats*, and particularly affected the fishing communities like the Kaibarrtas. More systematic control and monitoring was sought to be instituted by the state on the water-bodies which were valuable for their fish, though the small share of revenue from fisheries to the total revenue demand from the province worked as an impediment to the state in setting up of an expensive fishery establishment. Moreover, the state could not complete ignore or deny the demands of the *raiyats* and other inhabitants of the Valley to fish in water bodies free of cost, but this was allowed only as a matter of 'privilege' or 'concession' and not as a right. The concerns for conserving fish for securing a steady supply to the urban markets prompted the British authorities to declare stretches of some rivers of Asom as fish-sanctuaries in the early decades of the twentieth century, where 'destruction' of fish by netting, trapping, poisoning etc. was declared 'illegal', and certain communities were criminalised as habitual offenders. However, such prohibitions remained a dead-letter in parts of the Valley and also in the hills surrounding it, as the state also was not in a position to impose its writ on the "loosely administered areas" on the North East Frontier of the British Indian Empire, nor did it find it fit to antagonise the hill communities through penalties and punishment for what was considered to be "petty offenses" such as 'illegal' fishing. In the valley, however, the regulations related to fishing were more strictly imposed, and the fishing communities and tribal communities in the plains and inhabiting the rivers were often at the receiving end of colonial rule of law. The market in fish primarily developed in the towns and urban settlements, which were supplied by the local fisheries. In both rural and urban areas of the Valley, fishing remained strictly caste-defined in the period under review from the point of view of occupation, until East Bengal immigrants took up this

[93] Secretary to the Chief Commissioner of Assam to the Commissioner of the Assam Valley Districts, No.1044Misc.-5239R, Shillong 17 November 1904, ASA.

occupation beginning in the first decades of the twentieth century. When perceived as a means of supplementing home consumption and as a part of festivities of different communities, fishing was a task common to almost every rural household in colonial Asom.

Boats and Boat-Building

The importance of country-made boats for undertaking communication for all purposes in a land of innumerable rivers and regular floods could be hardly overemphasized, especially till the beginning of the twentieth century when the bulk of the Valley's traffic – whether of people or commodities – were carried on by country-boats. Almost every family had a canoe or a dugout, which was used for fording or traveling on the numerous rivers, and move about during the floods. At times even an entire settlement or *bazaar* could be shifted to boats in times of high floods, as was observed by a medical practitioner D. A. Macleod in 1830s in Bishwanath, an important cantonment-town on the north bank of Brahmaputra in central Asom. He observed, "The Sudder Bazaar at Bishnath consists of about 140 houses, containing from 6 to 700 inhabitants… The present site of the bazaar is most wretched, cramped up on the edge of the nulla, the people are crowded together in a manner highly prejudicial to their health, and are sometimes for a fortnight together obliged to move bout from house to house in canoes when the river [Brahmaputra] rises very high."[94] Alluding to the sudden transformation of roads in Asom to waterways that were fordable more easily by canoes than on foot, an additional secretary to the Bengal government wrote in an official communication in 1868,

> Immediately a road gets too much under water for foot passengers, it only becomes a good channel for boats. The small 'dugouts' or canoes of Assam can easily be propelled along a road covered by a few inches of water, that is to say before a footman need to cease walk on it. The only thing

[94] D. A. Macleod, Assistant Surgeon, Assam Light Infantry, *A Sketch of the Medical Topography of Bishnath, and its Immediate Neighbourhood; with an Account of the Diseases Generally Prevailing in Assam*, Calcutta: Bengal Military Orphan Press, 1837, p.9, NAI.

> necessary is to be ready everywhere to substitute the canoe for the [mail] runner.[95]

Barpeta for instance, one of the most important trading centres of the Valley, depended on boats even till the turn of the nineteenth century. As was observed, "Barpeta, then, is well supplied with roads, but so great are the floods owing to the inability of the damaged and now shallow channels to carry off the rainfall with sufficient rapidity, that it is not possible to keep them open throughout the year. *Traffic is almost entirely carried on by boat, and even before the earthquake [of 1897] part of the trade of the place was borne in this way.*"[96] To cater to the needs of trade, a boat-building establishment was in existence in Barpeta which was mentioned as one of the "provincial industries".[97] The logs for Barpeta boats were floated down from the Garo Hills to its south through the streams meeting the Brahmaputra, after roughly hollowing them out in the hills. Once brought to Barpeta, the usual process of Asom's native country-boats and canoes was followed, and boats extending up to lengths of sixty feet and six to seven feet of breadth were thus constructed.

The Census of Assam for 1881 returned 7,126 persons engaged as boatman in the province, which was inclusive of Sylhet and Cachar.[98] Only seven 'boat-builders' were registered by the census, signifying that unlike in Bengal, boat-building as a separate industry or profession was not generally recognised in the Valley in the colonial period. Some of those engaged in other productive activities such as cultivation and fishing were also skilled in boat-building. Boats were the major means of transportation in the region. Road traffic in Asom was considered to be at a minimum chiefly because of the absence of all-weather

[95] S. C. Bailey, Officiating Additional Secretary to the Government of Bengal, to the Commissioner of the Cooch Behar Division, No.5208, Fort William 31 October 1868, File No.96G, 1871-74, Goalpara Papers, ASA.
[96] 'Assessment Report of Bojali Group, Kamrup District', Assam Secretariat Proceedings, Revenue Department, Rev.-A, June 1904, ASA.
[97] ibid.
[98] *Report on the Census of Assam, 1881*, 'Occupations', p.117.

metal roads. The soil of the entire country was clayey and the freight had to be carried by water, the rivers working as the 'high-ways'.[99]

Some of the tributaries of the Brahmaputra had such a meandering course that "a straight piece of water is unknown". [100] As for the modes of boating, towing by a line was made difficult by sharp turns and the densely forested banks, particularly that of the smaller and secondary rivers. Sailing was also not an option in such rivers since the tall and dense forests on the banks shut out the wind. Rowing too was only possible down-stream, whereas the challenge was to take freight up against the current running upwards often at five miles per hour. As such, what was termed as 'poling' alone remained the only effectual means. The most obvious advantage of this method was that the crew could direct their canoes against a fixed point and not against water rapidly slipping past, as was the case with rowing. "Thus out of the four means possible, i.e., traction, sailing, rowing and poling, the latter alone is possible under the ruling conditions." The native canoes built in Asom were said to be "remarkably suited for the work they called on to perform, and for overcoming the peculiar difficulties of the navigation, in at least the secondary rivers."[101] Since cargo could be taken upstream only by *poling*, they far surpassed in both cheapness and speed the best boats made of any material.

The Kinds of Canoes

E. A. Peal in his unpublished monograph titled *The Canoes of Assam* identified four kinds of boats in general use in nineteenth-century Asom. They were the Hoolong, Soosia Nao, Khel Nao and Marr Nao. The first was the longest of the four that could carry a freight of 500 maunds at times. The Soosia, literally meaning a skimmer, in contrast, was a smaller boat that could carry five to six persons, and were used by the Nadiyals and other villagers. The Khel Nao

[99] E. A. Peal, *The Canoes of Assam*, 1870, manuscript, India Office Library Records. The following discussion is drawn from this work. I am thankful to Bodhisattva Kar for providing a copy of the MS.
[100] ibid.
[101] ibid.

literally denoted a pleasure-boat, which was constructed in various sizes and shapes. When two or more boats were lashed along for better stability and carrying capacity, it was called a Marr Nao.

The Hooloong was named after the tree from which this type of boat was constructed. Their length varied from 50 to 80 feet, the breadth from three to six feet, and two to four feet in depth. The *tings* or the peaks at bow and stern, of which the one at the stern was raised, allowed the sternman a vision over the *choppa* or the roof. A Hooloong with 300 or 400 maunds' capacity could carry six boatmen in the crew, four of whom were placed at the roof and one on each *ting*. The speed upstream varied greatly from half-a-mile to two miles an hour, while coming downstream it could go up to five miles per hour. This boat was not preferred for longer journeys as it often took a longer time and several attempts to pass a curve with swift currents, or where the channel of the stream was obstructed by large trees, etc. If the "hold on the bank" was lost in such a stretch of the Brahmaputra, a whole days' journey could be reversed in an hour's time. "As a rule", the speed of journey was calculated to be "one day down is equal to four going up." The largeness of the Hooloong made it a preferred choice for carrying the considerable internal trade between eastern and western Asom, conveying oil, salt, jaggery, betel-nut, native-made pottery and most of the freight to and from the tea gardens. It also supplied the numerous godowns on the river-stations by the Brahmaputra. D. A. Macleod, a surgeon attached to the Assam Light Infantry at Bishwanath, while talking of the trade carried out in the Valley by the Marwari traders, appreciated the *hooloongs* when he observed in 1837,

> They convey their merchandize in enormous canoes called hoolungs, capable of containing from 40 to 100 maunds. They are admirably calculated for the river, as with five men they can be pushed along by bamboo poles at the rate of 8 or 10 miles a day, with tolerable certainty, when other boats make little or no progress during the rains, on account of the rapidity of the current, there being no tracking ground, and continued easterly wind which may be said to prevail for nine months of the year.[102]

[102] D. A. Macleod, *A Sketch of the Medical Topography of Bishnath*, p.11.

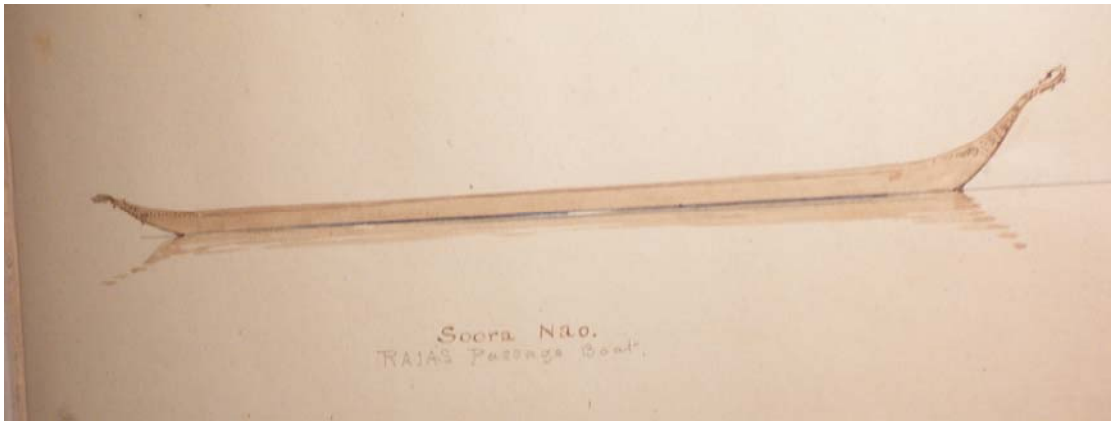
'Hoolong' (E. A. Peal, *The Canoes of Assam*, 1870)

'Soosia Nao' (E. A. Peal, *The Canoes of Assam*, 1870)

The Khel Nao varied in its carrying capacity from 10 to 100 maunds, though it was generally used only for passenger transport. They were reported to be more in use in western Asom district than elsewhere, and were manned by ten to twenty Nadiyals in the crew, who propelled it by oars called *bytas*. These boats were superior in construction than any other of its kind, and were said to be designed for speed alone.

The Soosia Nao, on the other hand, was the smallest of the lot, and was by far the most common, used universally for all purposes, in crossing streams, going for firewood, fishing, navigating, etc. This boat was also employed in carrying government's mails when they were to be sent by water. When well-made and manned by a good crew of Nadiyals, the Soosia could attain a good speed of three to four miles an hour against the stream and eight to ten miles downstream. The size of these boats varied widely, so much so that no two would be found to be exactly alike. Its size varied from 20 to 35 feet long, one to two feet wide, and a foot to eighteen inches deep. They could carry from five to 30 maunds of weight. "The smaller boats of this kind are proverbially unsteady, and it is difficult for anyone not used to them and avoid a spill. Yet the natives will stand, one on each *ting*, apparently defying all laws of gravity as they shoot along seemingly quite unconcerned."[103] There was also another kind of boat called the *Sora Nao* used by the former Ahom Rajahs and the nobility, with 40 to 50 peddlers. They were the best of the Khel Naos or the pleasure boats used by the rich and the powerful, but very few of these canoes were in existence when Peal wrote his monograph in 1870.

[103] E. A. Peal, *The Canoes of Assam*.



'Soora Nao: Raja's Pleasure Boat' (E. A. Peal, *The Canoes of Assam*, 1870)

'Assamese Gossain's Boat' (E. A. Peal, *The Canoes of Assam*, 1870)

'On the Dhunsiri' (E. A. Peal, *The Canoes of Assam*, 1870)

The Construction

The timber procured from the tree Hoolong (*Dipterocarpus Pilosa*) was primarily preferred for boat-building in Asom for both its size and durability. It grew in abundance on the hills surrounding the Valley and in the forests of the plains. The tree was very straight and tall, forming a clean shaft and dense head of foliage. The Hooloong could grow up to 80 feet in length and four to six feet in diameter, and was said to last for nearly fifteen years. Mekahie (*Dipterocarpus Mekahie*) was a still larger and more durable timber lasting about 20 years. Its growth was similar to the Hoolong, and was commonly found on the gorges of the Dihing River. Several other kinds of timber were also used, but they were considered to be inferior in quality to the two mentioned above.

The construction process involved the tasks of felling, cutting, launching and fitting respectively, along with their subsidiary works. Peal noticed that it was not always easy to find the right kind of tree, particularly in the areas in the vicinity of the rivers where it was convenient to bring the canoes out to the river after construction. As Peal observed, "The constant demand for large timber has so exhausted the supply that unless far from the beaten tracks it is difficult to meet one. Now and then fine trees will be seen, but so situated that to get the canoe out after made, would be difficult or impossible." When such a suitable tree was located, and it was decided which side the tree needed be cut and felled, a stage eight to nine feet high along the tree was made, climbing on which the tree was cut. After the tree was grounded, the bark and sapwood was removed and the bow and stern were cut, so as to leave the *tings* roughly as projecting slabs. After cleaning the surface of the tree this way and its weight lightened, the log was rolled over, ready for the woodwork. The log was hollowed out by using the axe in the beginning, and later the adze called *banghee* was employed to trim the surface and cut it out where more care was required. The floor of the boat was left thicker and flatter than the sides, while making the surface as smooth as the crude tools would allow. Thereafter,

'Felling a Simmol' (E. A. Peal, *The Canoes of Assam*, 1870)

'Plan at the Water Line' (E. A. Peal, *The Canoes of Assam*, 1870)

> The canoe is then ready for the critical operation of opening out, that is, gradually forcing the gumwals [the two sides] apart so as to make the boat of greater beam. This is always a delicate piece of work as trimming too much there is sure to cause a split and thereby ruin the canoe. Fire and water are used to assist, and by a judicious application of them, (say fire outside and water in), by mud plastered on, a rude kind of steaming is the result and as the sides open out, stretchers or *peerees* are driven in to keep them in situ, advantage is taken at this time to correct any irregularities of outside, and thus a crooked gumwal may be made straight and level.

All these boats were made from a single piece of timber by hollowing it out from inside, unlike the Bengal boats where the dugout was hardly in use. Since a canoe often needed fifty to sixty men to bring it to the waters, they were cut and prepared in close proximity to the rivers. Though the building process was required for all kinds of boats, the larger ones needed extra time and care in construction. This way, without using screws, nails, or complicated carpentry, boats of large magnitudes and capacity were built in Asom. A new boat cost about eight *annas* per *maund* in 1870s with the normal cost of labour. However, the expense fluctuated with the time of the year, in the rains it cost more than in the winters. The cost of carrying freight likewise varied with the distance as well as the time of the year, though it was observed that standard rates were increasingly becoming more common.

Setting on a journey, the crew of the canoes usually started at about sunrise, and most of the days' journey was covered before noon when rowing became more strenuous due to heat. The two ends of the boat or *tings* were occupied by two navigators. The one on the bow or the *ag-ting* had to keep a lookout for snags, shallows, tricky places, and other boats on the river, thereby effectively guiding the boat. The stern was controlled by the *goorial*, carrying a large oar-rudder. The crew *en-route* anchored on the banks or the numerous river-islands or *chars* dotting the stream. Firewood was generally available in such places. The meals prepared were usually a plain one of rice, and took about a couple of hours to cook. While describing such a setting Peal wrote poignantly, "As dusk closes in

the fires often look cheerful each with its group squatted round, cooking or singing. This latter they seem they able to do when asleep as it seems to last all night."[104]

A comparison of Asom's boatmen on the Brahmaputra was made with that on the Ganges, the latter found to be more proficient in their work, while the former was termed as inefficient and under the influence of opium. This was a typical colonial stereotype universally reserved for the indigenous people of all occupations in Asom, be it the peasants or the boatmen. "On the Ganges", wrote the Director of Public Education in Bengal who travelled on the Brahmaputra in a steamer in 1857, "from there being so many pilots on that line, employed by the private companies and by Government, each one helps the other with information as to the channels, and all come to 'know the water' much better than the Assamese pilots (even when not under the influence of opium). The pilots here seem to know very little about the channels."[105]

Moreover, the boats constructed in the Valley were found to be unsuitable for carrying bulky commodities such as coal, to be transported from the foothills to the Brahmaputra, the main artery of river-transport through its tributaries flowing out from the hills. This was apparent when the British government was exploring the possibilities of exploiting the mineral resources of the Dikhow River Valley in Sibsagar district during 1876-77. The party, including several railway engineers of the Northern Bengal State Railway, were entrusted the task of ascertaining "the practicability and the cost of laying down a light railway from the coal-fields of Sibsagar district to the banks of the Brahmaputra."[106] Detailed surveys were carried out for almost three months between Disangmukh on the Brahmaputra and Naginimora, at the foothills of the Naga Hills that contained the coal beds. The available information regarding the "natural features and conditions of the tract" was provided. The option of using the rivers as a medium of transport was considered and rejected.

[104] Peal, *The Canoes of Assam*.
[105] Secretary to the Government of Bengal to the Commissioner of Assam, Darjeeling 24 April 1857, Series I: Foreign Department, for 1857, Vol.43, ASA.
[106] *Report on the Administration of the Province of Assam for the Year 1877-78*, Shillong: Assam Secretariat Press, 1878, p.18.

> The Dikhu River was found to be in many respects unsuitable as a means of regular water transport. Its course is very winding, and in its upper waters to some distance below Suntuck there are frequent rapids, rendering navigation possible for 'dug-out' canoes. Below Nazira, however, the river is practicable for fair-sized boats, except for two or three months in the dry season.[107]

Even the steamers as carriers were considered to be an expensive mode of transportation for the "development and utilization of the abundant mineral resources". The rapid development of railways to reduce the dependence on water transport, either through native boats or through the steamers was advocated and attempted in the 1870s onwards. As the annual *Administration Report* for 1877-78 noted, "The question is one of the utmost interest and importance to the province, both in view to the development and utilization of the abundant mineral resources of the country and to the lowering of the present excessive cost of steamer carriage, both of goods and passengers, on the Brahmaputra, which is one of the principle obstacles to its advancement."[108] Though the provincial government was favourable to the construction of a tramway for 'opening up' the Naginimara coal-beds for exploration as advised by the survey party, the imperial government in Calcutta shot down the proposal as "all too expensive to be undertaken", directing the Chief Commissioner to look for 'more practicable' coal-fields. Preliminary surveys for connecting the Valley with Bengal by extending the Northern Bengal State Railways were actively pursued in the 1870s. Between 1875 and 1878, both the northern and southern banks of the Brahmaputra were surveyed for the suitability of a railway line till Guwahati.

The timber for building boats was nothing less than a necessity for the inhabitants of the Valley in the colonial period. A government official of Lakhimpur in 1885 reported that no royalty was levied for cutting timber for the purpose of building boats during the reign of the Ahom and Matak kings, "but now there is scarcely a boat left in the [Dibrugarh] *mauza* as the people have

[107] ibid., pp.18-19.
[108] ibid., p.19.

ceased to make them because of the tax."[109] It was also stated that the Neog and the Saikia (officers of the Ahom bureaucracy) of Ujanhokankhola requested for a permission to cut poma tree to construct two boats free of royalty. The district officer of Lakhimpur wrote in 1885 that these officials had to come to Dibrugarh occasionally on official business and unlike in the past when the journey was always made on boats, now had to be conducted by rail. This entailed much expense to them, as each man brought two attendants and the railway fair was Re.1 for each person. Further, "The gregarious and exclusive habit of the Muttocks renders it necessary that they should go about in small companies together when they visit the outside world and so their expenses of travelling are increased."[110] The Deputy Commissioner recommended that their request be conceded to, with the condition that the boats thus made would be considered as government's property and not that of the persons using them. The Chief Commissioner sanctioned this 'concession' or 'privilege' by relaxing the rules for the two officials.[111]

But it was not only the members of the old bureaucracy of the Ahom state like the persons mentioned above who were in need of trees for making boats. Considering the dependence of the Mishings, Deoris and other riverine communities of the Brahmaputra Valley on country-made boats for communication, colonial authorities of Lakhimpur district "relaxed" the rules regarding felling and collection of timber in 1883, and allowed them to procure unreserved trees for making boats that could be used for their private purposes.[112] Other inhabitants of the Valley, however, complained that the importance of boats for communication is not only confined to Lakhimpur alone, but were equally applicable to all the plains districts of Asom on the Brahmaputra, nor was the need for trees to make boats limited to the Miris and

[109] Deputy Commissioner of Lakhimpur, to the Commissioner of the Assam Valley Districts, No.1655, Dibrugarh 31 August 1885, Home, Forest B, September 1885, Nos.28/29, NAI.
[110] ibid.
[111] Chief Commissioner of Assam, Revenue Department to the Commissioner of Assam Valley Districts, No.2340, 23 September 1885, Home, Forest B, September 1885, Nos.28/29, NAI.
[112] Commissioner of the Assam Valley Districts to the Secretary to the Chief Commissioner of Assam, No.509, Gauhati 3 May 1884, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.

Deoris. Such needs were particularly felt by the inhabitants of Majuli, the largest river-island on the Brahmaputra. Therefore, the cultivators of Majuli,

> all complained of the recent orders under which a royalty of Rs.2 is levied on each boat cut out of any tree on which royalty is payable when cut. Royalty at Rs.2 being now payable on unreserved trees, it was urged that this order is particularly hard on those who cut boats out of the Simul tree which abounds in the Majuli and the wood of which is almost worthless. Such boats rarely last more than 1 year or at the most 2 years and when sold it is said do not fetch a higher price than 4 or 5 rupees. A royalty of Rs.2 on a boat the value of which does not exceed Rs.5 seems excessive. On the other hand it may be said that the people need not cut their boats out of worthless trees if it does not pay them to do so as there is plenty of wood procurable in the majuli… the royalty assessed on boats cut from simal trees does not bear a proportion to the value of the boat much in excess of the royalty now assessed on bamboos.[113]

Combined with the peculiar circumstances of Majuli where "the people are compelled to have resort to boats for a great portion of the year owing to the floods of the Brahmaputra", the royalty put its inhabitants in hardship.[114] This was despite the prevailing Forest Rules which allowed villagers to collect woods for consumption and non-trade purposes free of cost, which however excluded timber used for boats. As per the government's rules notified in December 1883, all newly constructed boats were liable for collecting a levy, which would be of the same amount as the royalty payable on the tree it was made from. For instance, the revenue charged on a boat made of a Simul tree was charged Rs.2, which was also the prevailing rate of royalty on felling a Simul. The question for the colonial authorities, therefore, "simply is whether the rule charging Rs.2 on unreserved trees taken for boats in the Majuli, such being among the necessaries of life of the ryot population of that part, shall be relaxed."[115] The Deputy Commissioner of Sibsagar recommended that boats made from unreserved trees for private use be exempted from the payment of royalty. The circumstances

[113] W. C. Ward, Commissioner of the Assam Valley Districts to the Deputy Commissioner of Sibsagar, No.81, Gauhati 7 March 1884, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.
[114] ibid.
[115] W. C. I. Clarke, Deputy Commissioner of Sibsagar, to the Commissioner of the Assam Valley Districts, Sibsagar 24 April 1884, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.

existing in Majuli, he further noted, was common elsewhere in Asom as well, "where such boats are used they are necessities of life and nothing else."[116] The government nonetheless agreed merely to allow the cutting of unreserved trees free of charge to construct a limited number of revenue-free boats which *raiyats* required for "agricultural purposes". Further, it was the government which was to determine the number of boats required for each village. Moreover, the concession was made available only to the villages of Majuli, and even among them, only to those "whose inhabitants have streams to cross between their houses and their fields."[117] The government notification of 1885 read,

> The upper portion of the Majuli, from the Auniaati to the Dakhinpat Shattras is intersected in all directions with creeks and streams, and boats are really a necessity of life during half the year. The Miri villages farther east on the banks of the Brahmaputra or Kherkatia Suti with the jungle behind them, boats are their only means of locomotion, save in the winter. The concession asked for by the ryots might be granted to the inhabitants of the Majuli.[118]

Here again, as was the case with fishing by the inhabitants of the Valley, the collection of timber too was made a source of colonial revenue generation. The 'relaxations' allowed in certain circumstances were mere exceptions to this rule, and were to be 'privileges' bestowed by the discretion of the state. The conflict between the state's need for generating revenue and the subject's need for timber for constructing boats continued during the rest of the colonial period, even though the development of road and railway communication in the first half of the twentieth century diminished the importance of boat-communication in the long-distance routes to some extent.

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[116] ibid.

[117] Office of the Chief Commissioner of Assam to the Commissioner of the Assam Valley Districts, No.1210, 19 May 1884, Home-B, Forest Branch, March 1885, NAI.

[118] 'Order', 'Taxation of Unreserved Trees used for Boats in the Majuli in Sibsagar', Commissioner of the Assam Valley Districts to the Office of the Chief Commissioner of Assam, Revenue Department, 3 May 1885, Home-B, Forest Branch, March 1885, NAI.

Catching Timber on the River

Much like the other occupations connected with the rivers, there was also the common practice of collecting timber and firewood floating down the Brahmaputra and its larger tributaries from the surrounding hills, particularly during the months of monsoon when the rivers were at a spate. It was generally in the three months of July, August, and September that drift-wood was mostly available and usually collected. In the Kamrup district, the well-to-do class deputed their servants and dependents to catch drift-timber for home consumption, primarily for fuel. Petty traders, consisting chiefly of *Nadiyals* caught timber for sale, but the profit derived by them was found to be inconsiderable, and "inasmuch as they catch drift timber while fishing, and do not, as a rule, keep an establishment or boats for the purpose."[119] Though "these logs are seldom of much value", "Sometimes logs of considerable size are caught in the river".[120] Nevertheless, this task involved considerable risk. *Orunodoi*, the first newspaper to be published in Assamese, reported an accident met by drift-timber collectors in its July 1846 edition. On the morning of July 7 of that year in Sibsagar district when there was a rapid rise in the waters of the Dikhow River, three people went on boat to catch timber, while two were pulling the boat from the bank with the help of a rope. "The rope slipped out of one of them and he fell face down on the bank, while the other was pulled down and carried away by the swift currents of the river. The Kolita [caste] man named Tuaram died by drowning."[121]

The colonial State was ready to allow the catching of drift timber by the people as merely a 'privilege', and not as a right, though the inhabitants considered it to be a bounty enjoyed free of cost from time immemorial. However, "the privilege was actually interfered with" by the government in 1898 by introducing a permit system for the collection of drift-timber for commercial purposes, in line with the

[119] P. R. T. Gurdon, Deputy Commissioner of Kamrup, to the Commissioner of the Assam Valley Districts, No. 2383, Gauhati 20 September 1899, Rev.- A, March 1900, Nos.1-12, Assam Secretariat Proceedings, Revenue and Agricultural Department, ASA.
[120] ibid.
[121] 'General Intelligence', *Orunodoi*, July 1846, Vol. I, No.7.

rules existing in the Surma Valley.[122] These new regulations opened up one more avenue of extraction of revenue from the subjects and petty-traders eking out a meager livelihood by collecting timber from the Brahmaputra. A petition by Dehiram Koch and others of North Guwahati brought these grievances to the notice of the State in the year 1900. They complained that "they were subject to frequent prosecutions for non-observance of the technicalities of the law", the forest authorities construed the permission to collect driftwood for domestic purposes as permission to collect only fuel, and as a consequence, they were prohibited from using drift timber for the purpose of repairing their boats and carts unless they shelled out the royalty payable under the prevailing Forest Rules.[123]

The Deputy Commissioner of Kamrup, P. R. T. Gurdon, when asked by the Chief Commissioner as to the question of "legalizing the collection of drift-timber wood" was of the opinion that in Asom's rivers, "The practice of collecting drift wood for home consumption has been in vogue for a very long time, and the same privilege should be extended, free of charge, to all settlement holders and their sub-tenants without restriction, and irrespective of the fact whether they catch drift timber themselves or employ servants to do the same, or whether they use it within or without the limits of their holdings."[124] The Deputy Commissioner of Goalpara district in his reply suggested that "I would myself much prefer the annual charge of Rs.9 or Rs.10 [royalty by issuing permit]. The result of the legalization of the collection, at any rate in the big towns on the river, would be, I think, to throw the whole collection of firewood into a professional class, who at the proposed rate would be able to sale for little more than the value of their labour."[125]

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[122] P. R. T. Gurdon, Deputy Commissioner of Kamrup, to the Commissioner of the Assam Valley Districts, No.2383, Gauhati 20 September 1899, Rev.-A, March 1900, Nos.1-12, Assam Secretariat Proceedings, Revenue and Agricultural Department, ASA.

[123] 'Resolution', *Extract from the Proceedings of the Chief Commissioner of Assam in the General Department*, No.624-31R, Shillong 26 February 1900, Rev.-A, March 1900, Nos.1-12, Assam Secretariat Proceedings, Revenue and Agricultural Department, ASA.

[124] ibid.

[125] F. E. Jackson, Officiating Deputy Commissioner of Goalpara, to the Commissioner of the Assam Valley Districts, No.1639G, Dhubri, 4 September 1899, Rev.-A, March 1900, Nos.1-12, Assam Secretariat Proceedings, Revenue and Agricultural Department, ASA.

B. C. Allen, the district officer in charge of Darrang said that in the town of Tezpur drift-timber was collected at the *ghâts*, "cut up, stacked, and openly sold, the Forest Department issuing monthly permits to the vendors, for which they charge Re.1.8 per mensem."[126] Sixty four of such permits were issued in 1897-98 in that district, one hundred and sixteen in 1898-99 and fifty five in the four months from April to July in the year 1899. He was of the opinion that "The system seems to work well, and though no doubt a certain amount of firewood is sold which is not covered by a permit, the amount which escapes duty is probably not large, as there are a considerable number of licensed vendors who would obviously resent any open attempts made by unlicensed persons to encroach upon their business." He considered the proposal of allowing only "bona-fide agriculturists" to collect timber free of charge for their own use, very few cultivators in this district would benefit by the "concession". This was because drift-timber was collected primarily by only the Nadiyals, and since almost all of them were landless and hardly possessed any cultivable land, they would not be included within the term 'agriculturist', thereby remaining outside the ambit of the concession.[127] Another consideration also influenced the State's drift-wood policy, particularly in relation to the Brahmaputra. Allowed it to be collected freely, the practice kept the channel clean of snags and other obstacles in navigation. As the Deputy Commissioner of Darrang explained,

> The Conservator observes that the object of the present rules was probably to benefit the poorer classes of the community, but I believe that I am right in saying that another object was the removal of snags from the river channel, and that government has hitherto abstained from levying royalty on drift timber collected in the Brahmaputra, because it was considered a matter of public importance that every encouragement should be given to persons to collect the logs that come floating down the stream. A proposal to levy royalty on drift was, I believe, made some years ago, but was negatived on these grounds.[128]

[126] B. C. Allen, Officiating Deputy Commissioner of Darrang, to the Commissioner of the Assam Valley Districts, No.1440R, Tezpur, 14 August 1899, Rev.-A, March 1900, Nos.1-12, Assam Secretariat Proceedings, Revenue and Agricultural Department, ASA.
[127] ibid.
[128] ibid.

So the *Rules* for the collection of drift-timber in rivers of the Brahmaputra Valley were modified to allow the use of unmarked drift timber free to all settlement-holders and their tenants who could collect it for their domestic and agricultural and other private purposes, but not for sale or trade. Exceptions were however made to the rules for the Dayang and Dhansiri rivers in the Sibsagar district and the Bhareli River in the Darrang district, as well as other rivers which might be "closed from time to time" by government order.[129] On the other hand, drift-timber which was collected for trade or sale now required permits from the Forest Department on payment of a monthly or annual royalty. These modifications were undertaken, the government explained, "only to clear up points which needed elucidation", and "not to deprive the people of any benefit they have hitherto enjoyed", as it was thought that it could "afford to be liberal" with regard to a duty on collected drift timber.[130] The taxation on a necessity which was hitherto freely available and collected, however, put an additional burden on the small traders, peddlers and sellers of wood, most of whom, as noted above, were the landless Nadiyals belonging to an oppressed caste.

There was also a difference of opinion within the colonial officials that came up in 1892 on the question of whether the drift-timber collected from the Brahmaputra by brass-smiths of Borooagia village in Nowgong districts who prepared charcoal out of it for trade purposes, should be taxed or not.[131] The Deputy Commissioner of the district was of the opinion that because the charcoal made from the driftwood was not sold by the brass-workers, it was not to be considered made for trade purposes, and hence no duty needed to be levied. Asom's Conservator of Forests, on the other hand, was convinced that "as the charcoal was employed in making the ware in which the brass workers traded, therefore it was used for trade purposes, and is excluded from the duty-free drift granted to ryots for domestic and agricultural purposes only." Moreover, the

[129] *Amendment of the Drift Timber Rules in the Brahmaputra Valley*, 26 February 1900, Rev.-A, March 1900, Nos.1-12, Assam Secretariat Proceedings, Revenue and Agricultural Department, ASA.
[130] 'Resolution', *Extract from the Proceedings of the Chief Commissioner of Assam in the General Department*, No.624-31R, Shillong 26 February 1900, Rev.-A, March 1900, Nos.1-12, Assam Secretariat Proceedings, Revenue and Agricultural Department, ASA.
[131] Officiating Conservator of Forests, Assam to Secretary to the Commissioner of Assam, Revenue Branch, No.2755R, 7 March 1892, Nos.287-292, May 1892, Rev.-B, NAI.

officer also believed that "a large quantity of charcoal had been consumed by the brass workers" the government was losing a considerable sum of revenue from this source because of the "lenient view" of the district officer, and called for the intervention of the Chief Commissioner.[132]

The Commissioner of the Assam Valley Districts too was opposed to the actions of the Deputy Commissioner, who allowed the brass-workers to collect the driftwood without charge. But the basis of his argument in favour of a tax was somewhat different from that put forward by the conservator. The Commissioner argued that, firstly, the "privilege" of collecting drift-wood was allowed only to the *raiyats* or the peasants, and secondly, only for their home consumption or agricultural purposes. None of these applied to the brass-workers, and hence argued for the discontinuation of the "privilege" they had been allowed so far.[133] The Chief Commissioner concurred with the views expressed by the conservator, and ruled that "such timber being collected for purposes of trade is clearly liable to duty."[134]

The above discussion indicates that riverine occupations that continued to survive and exist in the colonial period were sought to be commercialised by the State, though such moves invariably met with resentment and opposition from those subjects who stood to suffer from such steps. It is also clear that though in many cases the use of resources and material hitherto freely available were taxed, and those who violated the colonial regulations were termed 'illegal' and criminalised, it was impossible for the State to altogether prohibit or prevent such activities. The State also tried not to instigate widespread resentment and a sense of injustice among its subject population who were in many instances showing signs of rebellion against increasing land revenue taxation and dispossession from their customary rights. 'Relaxations' and 'concessions' were made use of by the provincial government in order to uphold the sanctity of rule

[132] J. M. C. Kee, Officiating Conservator of Forests, Assam to Secretary to the Commissioner of Assam, Revenue Branch, No.211, Shillong 7 March 1892, Nos.287-292, Rev.-B, May 1892, NAI.
[133] Officiating Commissioner of the Assam Valley Districts to the Divisional Officer, Nowgong, R.No.0/99, 8 January 1892, Nos.287-292, Rev.-B, May 1892, NAI.
[134] Secretary to the Commissioner of Assam, to the Officiating Conservator of Forests, Assam, No.1986R, Nos.287-292, Rev.-B, May 1892, NAI.

of law, in cases where these were under the threat of violation frequently and *en masse*. Nevertheless, in a caste-hierarchised Hindu society of the nineteenth century Brahmaputra Valley, these steps, purportedly to regulate 'illegalities' involving the riverine occupations that were made to be the domain of the most marginalised and oppressed of the social groups, adversely affected the tribal communities and the oppressed castes the most. While putting up petitions and demands for relaxation and annulment of such oppressive rules was one mode of opposition, avoiding the rules and breaking them whenever possible were also means by which such occupations were carried on. The rivers and forests of the Valley were the free gifts of Nature and sources of sustaining life for the common fish-workers, the potters, the boat-makers, the brass-workers, the drift-timber workers, the peasants, and others, even though the colonial state left no opportunity to put a price-tag on it. For the state, the rate and extent of compliance with the regulations on the resources of rivers and forests was a marker of its authority, while for its subjects the ability to break, bend or get around these oppressive laws was a marker of their freedom.

CHAPTER III

SETTLING THE VALLEY: MATERIAL CHANGE AND THE REDRAWING OF THE LANDSCAPE

During the many centuries of feudal rule preceding colonialism, there developed certain distinguishable features and patterns of settlement in the Valley, the major determining factor of such features and patterns being the prevailing nature of organizing production. The major productive activity was the cultivation of rice, for which the "original conditions of production", climate, soil, availability of natural water source, etc. was suitable in the Valley. The most numerous of the classes in the society therefore were the peasantry. Among the geophysical factors influencing the settlement of the peasants was the location, quality and elevation of the cultivable soil. They preferred to set up villages and settle in areas where the surrounding soil was suitable for rice cultivation; had good homestead land where garden crops could be grown; where climate was healthy and deadly diseases were not extant; which were in safe distance from the devastating floods and erosion of the numerous rivers crisscrossing the Valley; where necessary resources of life such as grass, thatch, bamboo, wood,

fish, etc. were easily and freely procurable; and so on. In addition, and equally or more importantly, there were political and social factors involved, such as the nature and rate of taxation, the number and degree of obligations, level of exploitation by high state officials and estate-holders, possibility of attack or war by neighbouring people, etc.

The changes in one or many of these favourable conditions might force the peasants to immigrate collectively or individually. It was common to find that whole villages with all its institutions would remove itself as a body and get resettled in another place, at times even retaining the former village name. A large number of villages in the Brahmaputra Valley had to move frequently, and this was regarded as a very common phenomenon. For instance, continued emigration of a large number of subjects from the Ahom Raja's country in Upper Assam to the Matak and British territories was reported by the Company's Political Agent for "Upper Assam" in 1836.[1] The emigrants were of considerable number consisting mostly of 'Dooms' and 'Murriahs' (Kaivarttas and Moamorias), though it is not clear as to what had caused such movement. An enquiry was ordered to be conducted by the Political Agent of the North East Frontier. This was to ascertain the number of subjects emigrating from the Ahom territory to the British and other territories between 1826 and 1836, and to find the reasons for this. It was not clear to the colonial state whether this exodus was due to the perceived mismanagement and "oppression" of the Raja under British 'protection', or due to circumstances beyond his control.[2]

Large tracts of the western Asom districts of Kamrup, Nowgong, Goalpara and Darrang attained the character of relatively permanent settlement during the medieval period much before the eastern Asom, where there was a subsequent development of permanent rice cultivation after the introduction and expansion

[1] "With reference to the reported desertion of the Ryots from the Rajah's country [Raja Puranadar Singh of Upper Assam] I beg to inform you that government will expect a particular report on the Rajah's misconduct of his country, and the cause of the immigration of the inhabitants." F. Jenkins, Commissioner of Assam, to Major A. White, Political Agent of Upper Assam, Bishnath, No.288, 21 October 1836, Series XI: Letters Issued to Miscellaneous Quarters, Vol. 1, 1836, ASA.

[2] F. Jenkins, Commissioner of Assam, to Major A. White, Political Agent of Upper Assam, Bishnath, No.293, 26 October 1836, Series XI: Letters Issued to Miscellaneous Quarters, Vol. 1, 1836, ASA.

of the *paik* system of obligatory labour to the Ahom State. The introduction and expansion of the *paik* system from the late sixteenth century onwards became the foundation of the fast expanding Ahom state that occupied almost all of the Brahmaputra Valley by the seventeenth century. The organization of *paik* system of mandatory physical labour spread throughout the Ahom state, and the *khels* under which the *gots* or units of *paiks* were organised, were established throughout the region. Resettlement in new areas, reclamation of forest and marshy land, and expansion of cultivation along with an enhanced appropriation of surplus labour and produce to sustain a growing state and its ruling class took place in great earnestness from sixteenth century onwards while the state oversaw this process of displacement and resettlement of its subject population. Apart from strengthening agrarian production, the *paik* system was instrumental in bringing tribal social formations under the command of the feudal production system, enforcing the intermixing of different production processes. Moreover, forced migration was used by the state to rein in political opponents, by weakening the internal organisation of recalcitrant communities opposed to the Ahom state, and forcefully resettling them over a vast region.[3]

The settlement pattern was defined by the ecological zones of the Valley, and three such kinds of zones or tracts were distinguishable on each bank of the River Brahmaputra, with their own peculiarities and characteristics. The first tract was the closest to the river starting from its banks to a few kilometers inland, from where the second kind began and extended further inland for another few kilometers, an area of flood-immune plains with fertile soil, where transplanted rice cultivation, the most important crop in the Valley, was extensively carried out. This gave way to the third kind –the submontane tract– which was at the foot of the hill ranges that surround the Valley from three sides. A vivid description of the two of these distinct tracts of land on both banks of the Brahmaputra could be found in the *Assessment Report* of the Bojali Group in Kamrup district. The submontane tract as was in "the north of the [Barpeta] subdivision along the Bhutan frontier, which follows the foot of the hills there is

[3] Manoranjan Dutta, *Axamar Uttar-Madhyayugat Arthanaitic Uttaran Aru Xamantatantric Skhalan*, Guwahati: Swapna Publishers, 2002.

belt of high land, roughly 20 miles in breadth, gradually descending in level as it recedes from the hills. This includes the deadly *terai…* as well as the villages south of the *terai*, where cultivation is permanent."[4] The second or the middle tract was at its south, which was "the flooded tract, once full of villages containing partly permanent and chiefly fluctuating cultivation, now covered with swamps and almost destitute of cultivated fields. The remaining villages, mostly bare of trees, which generally failed to survive the heavy inundations of 1897 and the following years, present a miserable appearance, and the cultivation round them is extremely precarious."[5] Further to the south of this tract on the north bank was the third kind of land closest to the Brahmaputra and consisting of

> the riverain villages where annual inundation is, and has been, regular from time immemorial. Here the village sites are generally permanent and the cultivation is fluctuating. Although liable to frequent floods, this tract has this advantage over what may be called the water-logged area, that on the fall of the river the flood water drains off rapidly and thus interferes less with cultivation.[6]

Of the various zones of the terrain in the Brahmaputra Valley, the nature of vegetation and the varieties of crops generally cultivated on them, an account is given in the *Report on the Administration of Assam* for the year 1911-12. It noted that the tract on either side of the Brahmaputra generally fell into four classes. The first was the *chapari* or the land in the immediate neighbourhood of the river, which was heavily flooded during the rains. It was, as a rule, covered with high grass jungle, which had to be cut down and burned before it could be brought under cultivation. However, when the floods did not rise too soon, it yielded excellent crops of *ahu* (*ashu, aus*), or early rice. The seed was sown in March or April, and reaped soon after the setting in of the rains from June to August. Behind the *chapori* was a belt of low-lying land, in which *bao*, a long-stemmed variety of rice, was grown. It was usually sown in April or May and reaped in November and December. *Ahu* was sometimes mixed with *bao* in

[4] Assessment Report of the Bojali Group of Villages, Assam Secretariat Proceedings, May 1902, ASA.
[5] ibid.
[6] ibid.

expectation of a crop before the river rises. The level of the terrain then gradually rose above the reach of ordinary floods, and *sali*, or transplanted winter rice, here was the staple crop. It was sown in nursery beds called *kothiyatoli*, the seedlings were transplanted in June or July when they were about two months old, and the harvest was reaped in November, December and January. *Sali* was divided into two main varieties, *bor* and *lahi*. The former had a heavier yield, but matured later and required more water than *lahi*, and was therefore usually planted on lower land. Beyond this was the submontane tract – where the level of the land was higher, and the fields were often irrigated from hill-streams. The chief crop was the *sali* variety of rice, or a transplanted form of *ahu* known as *kharma*. This land was practically immune from all risks of flood, and in fact had to be irrigated through the construction of *dongs* to render the cultivation.[7]

Similarly, referring specifically to the Kamrup district but which could be generally applied to the other districts of the Valley as well, the *Banking Committee Enquiry Report* of 1929 too identified these three natural divisions. "On both banks we have three natural divisions – low land near the river, liable to flood (called the Chaporis), a higher belt inland where transplanted paddy is grown (on the north bank this is known as the Rupit mahal) and the submontane tract near the hills."[8] The most densely populated and predominantly rice-producing *rupit* land cultivated by "Assamese cultivators" was on the middle tract. The density of the population could exceed 800 per square mile in this tract, as was the case in south Nalbari. Here the standard of living was higher than the standard prevailing in either the *chaporis* or the submontane areas. Conditions in the *chaporis* in comparison were far less favourable, paddy cultivation being more uncertain, communications less easy and the opportunities for subsidiary occupations more limited than the "*rupit mahal*" or the transplant-rice lands. The submontane tract likewise was less favourably situated in respect to cultivation as also in avenues for the disposal of surplus produce. These parts were also considered unhealthy. Here the inhabitants

[7] *Report of the Administration of Assam for the Year 1911-1912*, Shillong: Assam Secretariat Press, 1912, p.13.
[8] *Report of the Assam Banking Enquiry Committee*, 1929, p. 23.

belonged mainly to the "backward tribes", and these factors altogether led to a general living standard of its inhabitants that was lower than the *rupit mahal*.[9]

Something similar is indicated in the Census report of 1881 as well, but the distinctions were not made very clear and definite: "There are three large belts… in the north of the Brahmaputra Valley, running along the base of the Himalayas, and one in the centre of that valley where the river is too constantly shifting its course for permanent cultivation to be possible, in which there are no villages or hardly any, while the actual villages and population are congregated in the remaining portion" of the Valley.[10] While discussing the settlement pattern in the Valley, it is necessary to keep these geographical and ecological distinctions in mind, as there was a zone-wise distribution of the population in the Valley.

The Land on the River

The *chars* or the islands on the River Brahmaputra and the *chaporis* or the high lands on its banks with its own peculiarities constituted one such natural division in the Valley.[11] The cultivation in the *chars* and *chaporis* were fluctuating, and was called *pam* cultivation, which in general supplemented the peasant's permanent cultivation of rice with mustard, pulses and other high value winter crops. The *chars* and *chaporis* of the Brahmaputra were permanently inhabited till the end of nineteenth century by only a few communities of Mishings, Kaivartas or Nadiyals. Others stayed on the *chars* and *chaporis* – whether they were *pamuas* or graziers – only temporarily. The riverine people practiced cultivation of a fluctuating nature on the banks of the Brahmaputra, though in a smaller extent than the people of the other two tracts.

[9] ibid., pp.23-24.
[10] *Report on the Census of Assam, 1881*, 'General Area and Population', p.23.
[11] *Chars* on the Brahmaputra are formed due to the turbulences in its current. Depending on their size, composition and other factors, these *chars* can take relatively permanent character existing for decades or even centuries, or they can be very temporary, vanishing within the same year, and often even less. *Chaporis* contained reed jungle and other species of grass are its common natural vegetation if they were not entirely covered by dry sand, where nothing could grow. A *chapori* is defined in the official documents as "riverain land which is annually submerged, also immune high land covered with grass jungle." 'Glossary of Vernacular Terms', Proceedings of the Lieutenant Governor of Bengal, Rev. A, February 1906, Revenue Department, ASA.

In the period under review, it was common for the people of the '*rupit mahal*' region to take up land for temporary cultivation in the riverine *chars* and *chaporis*, but the reverse was not the case: the riverine people hardly owned land in the submontane region where permanent habitation and cultivation existed, and even if they did, the land was of relatively inferior quality than that of the their more prosperous neighbours. The *chapori* lands which were generally classified uniformly as 'faringati' or wasteland in government's revenue records were not necessarily uniform in soil quality or crops grown. As the Chief Commissioner of Assam noted in 1904, "There are differences of soil. But they are not constant, as the annual floods effect great changes by the deposition of soil and sand. And a dense growth of high grass entirely obscures the natural features of the surface soil, so long as it is uncultivated."[12]

On these extensive inundated lowlands *chaporis* of the Brahmaputra, the cultivators grew early rice for home consumption, and pulse and mustard for sale. The cash income thus obtained provided the land revenue payable not only upon these *chapori* lands, but also upon some portion of the established rice lands. "Peasants cultivated some amounts of *chapori* land in addition to their permanent village holdings…In well-established villages relinquishments [of land] were few in number. But in the *chaporis*, where the land was generally given up after two or three years' of cropping, [relinquishment requests] were annually filed by thousands."[13] In such tracts, since the agrarian production of winter rice, mustard and pulses during the dry season was highly variable, the occupants had to pay the land revenue six weeks before the date of payment was normally due in the early twentieth century.[14] One flood a year was considered as a normal occurrence. Generally the floods occur in the Asom from middle of June to September in the Brahmaputra and in the north bank rivers, and up to

[12] From F. J. Monahan, Secretary to the Chief Commissioner of Assam, to the Secretary to the Department of Revenue and Agriculture, Government of India, Shillong, 4 December 1903, "Reassessment of the Assam Valley Districts", Rev. A, June 1904, Assam Secretariat Proceedings, ASA.

[13] Secretary to the Chief Commissioner of Assam to the Secretary to the Government of India, Department of Revenue and Agriculture, No.406R-1051R, Shillong 16 April 1903, Proceedings of the Chief Commissioner of Assam, Revenue and Agricultural Department, January 1904, ASA.

[14] Secretary to the Chief Commissioner of Assam to the Secretary to the Government of India, Department of Revenue and Agriculture, No.406R-1051R, Shillong 16 April 1903, Proceedings of the Chief Commissioner of Assam, Revenue and Agricultural Department, January 1904, ASA.

October in some south-bank tributaries. If the floods came relatively early, in June or early part of July but did not recur again in the later months, it generally harmed the *ahu* crops and the *sali* seedlings, but time was still available in the season to grow the *sali* seedlings once again for transplant during August and September. If a flood took place between mid-July and mid-August, not much damage was done to the *ahu* crop, as most of it was already harvested. Such floods however destroyed the *sali* seedlings and left no time for an attempt to grow them again. A flood occurring at such a time also damaged the *bao* crop to various degrees. If the flood came very late in the season, i.e., in September or October, it generally did great damage to the standing *sali* crop.[15] Thus, cultivation in the Valley had to be carried out according to the opportunities and constraints of the climate, floods and the terrain, making use of the advantages from them while trying to negate its ill-effects.[16]

Much of these riverine lands in Goalpara district were divided up by the colonial government in *mahals* or estates, and were rented out on annual or temporary leases under the Regulation II of 1819 of the Bengal Code during mid-nineteenth century. The Commissioner of Assam mentioned transactions related to two such *chars* called Noabad and Dar in the district in 1854, and noted, "these are farmed on temporary leases which expired at the close of the year and the collector states that the new settlement of Noabad has not been so favourable as the previous one, owing to the quantity of the chur that has been cut away by the river of late years and I may add [that] the old settlements proved a very unprofitable one for the farmer."[17] This practice was carried on until regular revenue survey rules were extended to these regions in the latter half of the nineteenth century.

About the character of tract and its cultivation, the Settlement Officer of Nowgong reported that in general the soil in the in the villages nearest to the

[15] *Note on Assam Floods of 1954*, Shillong: Assam Government Press, 1954.
[16] ibid.
[17] From Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, No.165, Series V: Letters Issued to the Board of Revenue for the lower Provinces, 1854, ASA.

Brahmaputra was sandy. What was locally called *maubalia* land was mostly found a little further inland. The "old Assamese cultivation" was mostly in such clayey soil. In a large number of villages near the Leteri River of that district, sand was found within 1½ to 2 feet below the surface of the *maubalia* soil or the soil made of fine sand. In such areas,

> The Assamese used to practice their *pam* cultivation…The area is annually submerged by the Brahmaputra flood and the soil which gives its best to jute cultivation comes out of water with its richness restored after the rains. Unless the floods are untimely, i.e., occur before the jute is high enough not to go completely under water or after the sali crop has been transplanted late in the season, the annual inundations are a natural process of fertilisation and most welcome. Without a normal flood even the steeping of jute for extracting the fibre becomes difficult in many places.[18]

The permanent inhabitants of these tracts practiced fluctuating cultivation – shifting cultivation in some places like the Majuli – but had to supplement with other occupations. In fact, it is said that these communities were commonly thought to be more dependent on the River Brahmaputra than the land. In a period spanning over centuries, the riverein communities formed the most intimate relations with the Brahmaputra and its major tributaries. They developed a thorough and deep knowledge and understanding of the river while engaging with productive activities. Their knowledge of the terrain and the character of the Brahmaputra equipped them to inhabit the river and its banks with relative safety. Their settlement on the close proximity to the river was adapted to its character. They looked at the river with awe and revered it, the river was at the center of their lives, their culture, their society, even though within the larger society their culture and their lives occupied the lowest possible status. The riverine tracts, before they were permanently inhabited in great numbers by the immigrant peasants from East Bengal by the beginning of the twentieth century, was predominantly inhabited by the poorest, most

[18] 'Assessment Report on the Immigrant Group (Nowgong District) 1931', S. N. Datta, Settlement Officer, Nowgong, No.727S, Nowgong 19 February 1931, Assam Secretariat Proceedings, Revenue Department, Rev.-A, December 1931, Nos.331-350, ASA.

marginalised classes of the society, i.e., members of various tribal communities as well as the oppressed castes, including the 'outcastes'/'untouchables' of the Hindu society. As the *Assessment Report of Southern Jorhat Group* noted in 1905,

> The fact that the greater part of the group has been opened out in recent years is reflected the very large proportion of Bengalis (tea garden labourers) and Assamese of the lower castes – Kacharis, Ahoms and Chutiyas. Hinduized Cacharis call themselves Ahoms and Chutiyas abd higher class Ahoms are only found in Lahing. The population of Lahing mauza, containing as it does a number of very old villages, is mixed and made up of largely Brahmins, higher class Ahoms, Kolitas, whose condition is better than that of most group raiyats, even though Lahing is the least fertile mauza of the group.[19]

This riverine tract on and around the Brahmaputra traversing the district of Sibsagar in the east-west direction, was assessed for land revenue under the South Bank Fluctuating Group. It constituted the riverine *mauzas* of Jakaichuk, Kuarpur, Thaura Panidihing and Simaluguri in Sibsagar subdivision; Teok, Hazari, Chaukhat, Baligaon Parbatia and Misamara in Jorhat subdivision; and Dergaon, Rangamati and Namdayang in Golaghat subdivision. According to the *Assessment Report* of this group of villages for 1906, it comprised of "the whole of the strip of land lying on the southern bank of the Brahmaputra, which, owing to its being flooded every year, is capable only of fluctuating cultivation. The length of the strip is 130 miles and the average breadth about 4 miles. The total area is 522.1 square miles and comprises 89 cadastral and extension villages and 437.7 square miles of non-cadastral land."[20]

It was said that in the fifteen years preceding 1906, there were three heavy floods in the region, but the floods in this group were "neither as heavy nor as disastrous as in the Majuli". Majuli, considered to be one of the largest river-island in the world, with more than seven hundred square kilometers of area, was a *char* of the Brahmaputra. It was just to the north of the Group and was

[19] 'Assessment Report of the Central Jorhat Group', Rev. A, June 1905, Revenue Department, Assam Secretariat Proceedings, ASA.
[20] 'Assessment Report: South Bank Fluctuating Group', Proceedings of the Lieutenant Governor of Bengal, Revenue Department, February 1906, ASA.

divided by a channel of the river. This contrast in the impact of floods was because "The great distinction between the cultivation of the South Bank and of the Majuli is that in the former the amount of *pam* cultivation by the raiyats of established villages is as considerable as that done by residents of the group, while in Majuli there is scarcely any *pam* cultivation."[21] There might not have been as many *pams* or temporary hutments in Majuli, but this by no means indicate that the nature of cultivation in Majuli was permanent. When maps were prepared for each village of Sibsagar, Nowgong and Kamrup districts to identify the percentage of settled cultivated land annually relinquished by the tenants in 1901-02, it was found that while 64 percent of Sibsagar villages relinquished less than five percent of their land, in contrast "there are certain tracts in which a very large proportion of cultivated area is annually abandoned". To the colonial authorities, Majuli offered an extreme instance of this kind, where "no less than 87 out of 125 villages showing percentage [of relinquishment] exceeding 50", clearly indicating the wide practice of fluctuating and temporary cultivation as any other part of the riverine tract on the Brahmaputra.[22]

Official communications of 1883-85 reveals that Mishing and Deori communities of Majuli were allowed by a government order to practice *jhum* or fluctuating cultivation, which was otherwise considered to be a "wasteful method of cultivation." The justification given for this exception was that it was "the only form of cultivation of which they are at present capable", unlike the "Hindus".[23] The Mishing and Deori *raiyats* of Majuli in particular extensively cultivated cotton, mustard and *ahu* through *jhum* on the high jungle lands on the *chapori* which were annually cleared by using the hoe. Cultivators of other agricultural communities described as Hindus gave up their *jhum* cultivation on the wooden tracts to a large extent in 1880s after it was prohibited by the government. However, the Mishings and Deoris continued this form of cultivation, even though the extent was reported to be lesser than before, and in far off places so

[21] ibid.
[22] Secretary to the Chief Commissioner of Assam, to the Commissioner, Assam Valley Districts, No.937R, Shillong 26 September 1903, Assam Secretariat Proceedings, February 1905, Rev.-A, ASA.
[23] C. J. Lyall, Officiating Commissioner of the Assam Valley Districts, to the Deputy Commissioner, Sibsagar, No.432, Guwahati 19 April 1884, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.

as to avoid prosecution and payment of royalty on the felling of timber that was required for clearing up the land. The colonial government's perception was that while the "Hindu" agrarian communities supplemented the produce of *jhum* to their permanent rice cultivation, for the tribal communities of Majuli who had little or no permanent rice land, *jhum* was almost always the sole mode of cultivation and source of crops. The Chief Commissioner observed in 1884, "There is a good deal of Jhumming for mustard done by Hindu cultivators in the majuli, but their main dependence is on their permanent rice cultivation, it is believed, differed from that of the Miris Deoris."[24] Therefore they were "bound to grow for support" *ahu* and mustard crops, though they almost entirely gave up cotton cultivation by the last decades of the nineteenth century.[25]

The prohibition on *jhum*, one government official observed with concern in 1883, had resulted in a decline of the cropped area in the riverine *chapori* lands of Majuli. He argued that the general reason behind the banning of *jhum* – the presumed destruction of valuable forests – could not be applied to Majuli. The jungles of the river island where *jhum* was generally practiced, were full of Som, Soalu (Simalu) and Uriam trees, which were excluded from the list of trees classified as valuable by the Forest Department, and hence were not reserved. Though Som and Simalu were considered to be valuable for rearing silk-worms in other parts of the province, these were hardly used for this purpose in Majuli. Similarly, Urium was regarded as inferior to even Koroi and Ajar, both unreserved trees in the province and abundantly available in the region. The officer was therefore of the opinion that the need to check the reduction of the cropped area far outweighed the harm done by the felling of these trees during *jhum* in Majuli, and suggested the prohibition on it be withdrawn. If it was done, he hoped that more jungle lands would be annually taken up and brought under cultivation, thereby considerably increasing government revenue.[26]

[24] Office of the Chief Commissioner of Assam to the Deputy Commissioner of Sibsagar, No.1608, Shillong 8 July 1884, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.
[25] C. J. Lyall, Officiating Commissioner of the Assam Valley Districts, to the Deputy Commissioner, Sibsagar, No.432, Guwahati 19 April 1884, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.
[26] Madhab Chandra Bordoloi, Extra Assistant Commissioner, Jorhat to the Assistant Commissioner, Jorhat, No. E(8), Camp Salmara 1 March 1883, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.

The government agreed to this proposal made in 1883, but with one condition. The understanding that unlike their neighbouring "Hindu" peasants, the tribal communities of Majuli were entirely dependent on jhum cultivation on the *chapori* lands, resulted in the subsequent allowing of the Mishings and Deoris of Majuli to undertake shifting cultivation, while excluding the others. The rationale behind this decision of the Sibsagar Deputy Commissioner Lyall was explained by his successor W. C. S. Clarke. He noted, "The Officiating Commissioner Lyall decided after inquiry that the extension of privilege conceded to the Miris and Miris who live by jhumming was not necessary in the case of the Hindu ryots of the Majuli, who had permanent cultivation and who only jhum the chapori lands to raise their mustard crop."[27]

This resulted in the demand for similar concessions by "Hindu" cultivators of Majuli, which included Koch, Kalita and other non-tribal communities in 1885. Brojanath Bezbaroa, a member of the Jorhat Local Board, contested the government's opinion that there existed a marked distinction between the life-ways of the caste-Hindus and the tribal communities of Majuli. While forwarding a petition from Ratan Gaonbura and others, he wrote to the Chief Commissioner in June that year,

> the mode of cultivation adopted by the Hindoos of Majuli is just the same as the one adopted by the Miris and Deoris, and there is perfect similarity in the methods and modes of cultivation between the two races (the Hindoos and the Miri and Deoris). In majuli the Hindoos in no way any particular advantage over the Miris and Deoris so far as regards cultivation; the former as much put to inconvenience with the two classes of people being the same. The Hindoos of majuli are as much entitled to concession as the Miris and Deoris are. So the Hindus may be equally entitled to exemption from payment of royalty on trees that might be felled for the purpose of jhumming.[28]

[27] Col. W. C. S. Clarke, Deputy Commissioner of Sibsagar to the Assistant Secretary to the Chief Commissioner of Assam, No.1503, Sibsagar 10 October 1884, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.

[28] Brojnath Bezbaroa, Member of the Jorhat Local Board, to the Secretary to the Commissioner of Assam, No.34, Jorhat 25 June 1885, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.

In response, the opinion expressed by the Commissioner of Assam Valley Districts in 1884 was, "What is allowed to one class should be allowed to others".[29] He held that even though *jhum* was an undesirable form of cultivation that needed to be restricted as far as possible, in those tracts where there was no possibility of the extension of permanent cultivation, this "privilege" had to be extended to "all classes". The forested areas with valuable timber in it, however, were to be preserved where *jhum* needed to be prohibited. The incumbent district officer in charge of Sibsagar too seemed to have gone against the prevailing official viewpoint which apparently worked under a strictly compartmentalized notion of the differences among the people of the Valley. Anderson noted, "I am inclined to attach some weight to the argument that jhumming is a mode of cultivation incident to the locality and not to any particular caste or race of people. Many of the so called Hindus again, are men of aboriginal origin and differ but little from their Miri and Deori neighbours in their ways of life and thought."[30] The final decision whether to extend the "concession" or "privilege" of royalty-free felling of trees for *jhum* cultivation to peasants other than the Mishings and Deoris in the island was left to the Deputy Commissioner's examination in the ensuing winter season.[31]

When the floods occurred, the residents of the South Bank Fluctuating Group, in the first decades of the twentieth century, at worst had to leave their houses for a few days and take shelter with their cattle on high lands further inland. It was reported that they seldom lost their cattle or store of paddy, though it was known and expected that the standing crops of *ahu* and *sali* would suffer from floods to some extent almost every year. It was observed that during the decade of 1891-1901 there was a considerable increase in the population in this fluctuating group with predominantly temporary cultivation. In fact, the number

[29] The Commissioner of the Assam Valley Districts to the W. C. S. Clark, Deputy Commissioner of Sibsagar, No.458, 27 March 1884, Nos.86-92, Home-B, Forest Branch, March 1885, NAI.
[30] I. D. Anderson, Officiating Deputy Commissioner of Assam to the Secretary to the Chief Commissioner of Assam, No.959, Sibsagar 27 June 1885, Nos.11/12, Home Forest-B, July 1885, NAI.
[31] Officiating Secretary to the Chief Commissioner of Assam to the Deputy Commissioner of Sibsagar, Revenue Department, Sibsagar 8 July 1885, Nos.11/12, Home Forest-B, July 1885, NAI.

of villages in the group falling under Sibsagar subdivision grew from 1,254 to 1,650 in this period, while in Jorhat subdivision it increased from 3,950 to 6,079. Though the corresponding data for Golaghat subdivision in 1891 was not available, by 1901 the number of villages stood at 11,481, and it was assumed that the increase was in proportion to the other two subdivisions.

In the South Bank Fluctuating Group, the inhabitants were said to be "half Hindus and half Miris", and the *pomuas* or *pam* cultivators belonging to the "Hindu half" of the group's population, included all classes of people from the "established" or permanent villages, which were separated from the riverine *pam* tract by a line of embanked roads. The 'Miris' or the Mishing community on the other hand, were its permanent inhabitants, and going by the figures of 1901, had more than a thousand villages on the riverine tract. They generally did not own land on the permanently settled villages at a distance from the Brahmaputra, and therefore they had no option of temporarily leaving their homes during high floods like the 'Hindu' *pam* cultivators, who cultivated "*chapori* land only to supplement the cultivation which they have in their own villages, either because they have not enough land or in order to obtain a surplus." As such, their way of living was attuned to the floods. For instance, unlike that of the *pamuas*, their houses were constructed on elevated platforms made of bamboo and reed. The occupations other than cultivation in this tract were "fishing and lime-making by Doms, pottery by Kumars, and eri-silk weaving by the women of all Hindu castes."[32]

On this narrow strip of land adjacent to the Brahmaputra River on its both banks developed important urban townships and centers of trade, such as Guwahati, Dhuburi, Goalpara, etc. But leaving aside these settlements, there was rarely any dense and permanent habitation on the lands in close proximity to the Brahmaputra. Urban settlements, if any of the medieval centres of administration and trade could be called so, developed very little, and these were more near to "glorified villages" than cities even during nineteenth century. The division of labour between town and country was hardly distinguishable, with the only

[32] 'Assessment Report: South Bank Fluctuating Group', Proceedings of the Lieutenant Governor of Bengal, Revenue Department, February 1906, ASA.

exceptions being Goalpara and Barpeta. The latter is of particular importance because even till the first decade of colonial rule, Barpeta had the highest urban population and the biggest urban settlement within the whole of Brahmaputra Valley. This was primarily due to the large volume of trade controlled by Barpeta merchants who developed trading networks across the Valley.

The Submontane Tract

The submontane tract along the foothills did not retain water and moisture because of its steeper gradient. And since the flood waters rarely reached this tract, the soil was usually less fertile and inferior in quality, and was therefore not generally suitable for the cultivation of rice. This was a region primarily populated by villages of various tribal communities: Bodos, Kacharis, Rabhas, Tiwas, Garos, Nagas, Mishings, and others. The peculiarities of the production process in this region also shaped the nature of settlement in this region. Similar to the riverine tract, here too the cultivators were more heavily dependent on fluctuating cultivation and had to change their habitat more frequently. There was a greater dependence on supplementary occupations and productive activities such as animal rearing, fishing and day-labour, hunting and foraging, weaving etc. Cultivation required a larger sphere of area under it because productivity was low and labour-intensive, the population was sparse and density thin, villages were few and far between, were more secluded from and less connected to the centres and routes of trade in the Valley.

Describing the settlement pattern of Karaibari purgunnah, which was acquired from a "Hill Rajah" of Koch lineage that paid tribute to the British through a military campaign, Jenkins noted in 1854 that "The greater part of the whole estate by far is still uncultivated and what is cultivated is divided between zemindary ryots and the Garrows [the Garo tribal community]."[33] Further, it was observed that even though the two groups were intermixed in some regions, the

[33] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.21, 30 January 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.

Garos in main occupied the hills while "the ryots the plains or rather small villages between the hills and along the Berhampootur at their foot."[34] The "zamindari ryots" and the Garos were allowed to take up "any new lands they please and abandon their old lands and they are constantly changing their farms and the sites of their villages."[35]

The Census of Assam in 1881 profiled the inhabitants of this tract under the heading 'Geographical Distribution of Races'. It noted, "Though largely intermingled, these various races are still distinguishable in the main as belonging each to some particular locality in the valley of the Brahmaputra."[36] The Bodos being the most numerous, covered the widest area. They were settled in all the Brahmaputra Valley districts, though their numbers were higher in the western and central regions of the Valley, covering the districts of Goalpara, Kamrup, Darrang and Nowgong. Those who converted to Vaishnavism were known as Koch and were "mixed up with the Hindu population", while the unconverted section or the Bodos referred to in the colonial documents as Kacharis, Meches, and Rabhas inhabited the submontane tract on either bank of the Brahmaputra, living mainly on the northern bank of the Brahmaputra, while the Lalungs were on its southern bank.[37] They made use of irrigation by bringing the water of the hill streams on to their fields through little artificial channels called *dongs* constructed by the collective voluntary labour of the tribal villagers.

Dongs were an old method employed by the Bodo peasants of Darrang district to irrigate their fields in the submontane region that usually did not retain rain-water as much as in the plains areas. The water of rivers and streams ensuing from the Bhutan Hills were therefore channelized through the *dongs* or canals to make the otherwise dry lands cultivable. The *dongs* were small channels cut from hill streams from which the water was diverted by putting temporary *bunds* or weirs. During the earthquake of 1897 many of these *dongs* were said to have

[34] ibid.
[35] ibid.
[36] *Report on the Census of Assam, 1881*, 'Castes and Tribes', p.64.
[37] ibid., pp.64-65.

choked with sand, temporarily disturbing the irrigation of the fields. The cultivators had, however, cleared most of them and the system was almost restored to its old state.[38] In parts of Kamrup district on the south bank of the Brahmaputra too such irrigation was practiced. These irrigated lands in the south bank was

> generally described by people as *nijaratali* (cultivation watered by a hill stream or *Nijara*), and more rarely as *dongtoli*; the word used to describe the Kachari irrigation. On the south bank irrigation is practically confined to stretches of rice land immediately adjoining or winding among the hills, from which numerous small streams issue. The water of these small streams is distributed over the rice fields by small ditches. The supply varies rapidly with each change in the weather and in periods of drought generally fails. In other words, while the irrigated rice land in normal seasons is vastly superior to ordinary land, in periods of drought its superiority is not so marked. The irrigation is thus not efficient as the irrigation from rivers issuing from the Bhutan Hills[39]

Similarly, the submontane belt of land at the foot of the Bhutan Hills in the Mangaldai subdivision of Darrang district in the north bank was reported to be "inhabited mainly by the Kacharis and other allied people".[40] As for the terrain, "Practically the whole of this group can be described as a submontane tract sloping considerably throughout, towards the south from the foot of the hills. In the north there is a broad belt of very high land which contains most of the best tea gardens in the subdivision", while the lands to the south were "peopled chiefly by Assamese Hindus."[41] Here,

> the bigger streams do not benefit cultivation to any extent as the water rises suddenly and come down with violent rushes during the rains and subsides again very quickly. The Nanai and the Lachmi rather cause some damage to cultivation by floods or by shifting their courses, in certain villages on their

[38] Ibid., p.33.
[39] "Assessment Report: South Bank Group, Kamrup District", Rev. A, October 1905, Proceedings of the Lieutenant Governor of Bengal, Revenue Department, ASA.
[40] D. K. Mukherjee, "Reassessment Report of the Khallingduar Group of Villages in the Mangaldai Subdivision of the Darrang District", File Nos. 270-282, Rev. A, December 1931, Assam Secretariat Proceedings, Revenue Department, ASA.
[41] ibid.

> banks. Of the smaller hill streams, Kulsi and Batiamari only are dammed and fully utilized for the purpose of irrigation. It is however the smaller streams which take their rise from the springs that form the main source from which water is obtained to irrigate the rice lands… The main crop grown in this group is paddy and cultivation is practically carried on throughout the group by means of irrigation, the facilities for which are afforded by the numerous hill streams traversing the group. There is an elaborate system of irrigation channels, the construction and maintenance of which involves considerable organised labour on the part of the people. For this purpose, bunds are put up across the streams in their upper reaches and water is diverted into channels called *dongs* which have often to be dug through high lands for considerable distances. On reaching the cultivated area, the water is distributed over the fields by smaller channels called *balans*. In fact, paddy cultivation would hardly have been possible in most parts of this sloping and submontane area without this process of irrigation."[42]

They were also praised by the colonial officials presumably having no "contempt for daily labour which is so marked a characteristic of the Assamese. They readily work in tea gardens and in 1901 nearly 14,000 Kacharis were censused on the plantations."[43] A government report of 1929 brings out the distinction between these two groups of people, when it observes the condition of the peasantry in parts of Nowgong district,

> In the North Eastern group [of villages in Nowgong district] the indigenous Assamese predominates. The better class Assamese are fairly prosperous, rarely in serious debt and can maintain a reasonable standard of living. They are the most advanced next to the central group… there are very few who are very poor. The standard of life is rising and there seems to be little difficulty in maintaining it. The Lalungs, Mikirs, and Cacharis are rarely prosperous; they utilise much of rice in making rice beer. But the average debt among them is not heavy; their credit is poor, and when they want spare cash, they work on roads or in gardens. The ex-coolies are fairly poor. They are often in debt and as a class they are more

[42] ibid.
[43] B. C. Allen, Assam District Gazetteer, Vol. IV, Kamrup, Shillong: Assam Government Press, p.80.

> in the hands of the Mahajans than any others in the group except the Eastern Bengal immigrants.[44]

The '*rupit mahal*' or 'the tract of rice-fields' between the riverine and the submontane tracts was the most populous area of settlement in the Brahmaputra Valley. Most of the permanent rice cultivation was undertaken here. During the nearly six hundred years of Ahom rule in the region, the area under settled rice cultivation grew extensively; forest areas were brought under cultivation and new grounds lying unused were broken for transplant paddy cultivation. Centering on the cultivation of transplant rice grew the culture of mustard, pulses, sugar-cane, opium, garden produce, and so on. These rice producing regions with its dense concentration of population and high revenue generation were the mainstay of Ahom political power. It was in these tracts that population of the Valley was highly concentrated in the colonial period as well.

Demographic Trends in the Valley in the Nineteenth Century

From the year 1769 when the first Moamoria peasants' rebellion broke out till the conclusion of the first Anglo-Burmese War in 1826, the Brahmaputra Valley under the Ahom kings was considered to be a politically volatile period, when the powerful Ahom ruling class had to confront a serious challenge to its authority from within the society. It engaged in a prolonged civil war that lasted for more than two decades and which succeeded in deposing the monarch, even if temporarily. As a result of the political and social upheavals of the period, the independence of the Ahom rulers was severely compromised, allowing for concessions to British colonial interests and paving way for their direct military intervention in the last decade of eighteenth century. In 1817 the Ahom rulers accepted the supremacy of the Burmese monarch as a price for helping to quell struggles for power within different factions of the ruling class. From this time on, the rulers of Asom permanently lost its independence, their political power first usurped by the Burmese and subsequently by the British.

[44] *Report of the Banking Enquiry Committee Report*, Vol. 1, p. 21.

But the starting point and the first manifestation of the internal crisis leading to the foreign conquest of Asom was the great Moamoria peasants' rebellion, which was initially an upsurge against the perceived injustice and exploitation of the ruling class, and triggered by the conflict between the heads of two religious sects. Peasants in arms, participated *en-masse* from the communities known collectively as the Moamorias, but not exclusively, as the 'Singphos', Chutiyas etc. were also known to be part of this widespread rebellion, also gave expression to their hatred for the ruling powers of that period. It was a rebellion of the peasant class, though the leadership was from the nobility and the religious heads. The Moamoria rebels not only succeeded in smashing the institutions of Ahom political power in the countryside of eastern Asom, but could also hold on to their territories for many years. Initially starting off as a localized resistance, it soon acquired its political goal and purpose: that of completely destroying Ahom political power and capturing its centre, Rangpur. In defeats it took the form of a sustained and broad-based civil war for more than twenty years with frequent shifts in the balance of power, and led to a destruction of the country when royal troops overran the rebel-held territories and destroyed everything on its way.[45] Settled villages and fields of the rebels were destroyed, and a large part of the survivors forced to migrate to the hills and forests, or to the neighbouring kingdoms. When the British started to take up survey work of their recently acquired possessions, the survey officers came across vast areas which carried the marks of permanent occupation and habitation in the recent past, but now were abandoned and covered by jungle. In this period of civil war between 1770 and 1826, as has been remarked elsewhere, the population in Asom "dwindled down to less than half of what it had been; their smiling fields were overtaken by jungle."[46]

[45] Choudhuri Amanullah Khan says that the royal vengeance and atrocity on the rebellion was so intense that the royal troops during the reign of *Swargadeo* Gaurinath Singha massacred more than 700,000 rebels, suspects and their families within one and half months time in1782. Khan, Choudhuri Amanullah, *Kochbeharer Itihas*, Vol. I, Calcutta: Modern Book Agency, 1936, pp.136-139, cited in Kalita, Ramesh Chandra, *Asomor Kalanukramik Itihas: A Chronological History of Assam*, Guwahati: Publication Board, Asom, 2006, p.45.

[46] Amalendu Guha, *Planter Raj to Swaraj: Freedom Struggle and Electoral Politics, 1826-1947*, New Delhi: Peoples' Publishing House, 1976, p.19.

It has been also widely observed that the Burmese occupation of the kingdom of Asom was disastrous for the subjects, particularly the lower classes. Much of the stories of 'Burmese cruelties and atrocities' have taken mythological proportions at the hands of the imperialist historiographers, to show in contrast the 'British benevolence' who saved it from its plight. However, with the experience of the civil war, a historian would be hard pressed to determine whether the native rulers or the Burmese were more severe on their adversaries, given the customs and the context of those times.[47]

The population and settlement patterns of the Brahmaputra Valley therefore were going through remarkable flux during the second half of the eighteenth century, a trend which partially continued well into the colonial period. As the following tables indicate, the population in the Brahmaputra Valley districts increased in the twenty years beginning in 1835. These statistics, particularly the first set (i.e., of 1835) could be highly inaccurate and deceptive, as the colonial state did not have the mechanism to carry out a reliable census in the area of their control in the Valley as yet. Nevertheless, these are the only figures that one gets from that period, and even if it is possible that the numbers shown are below the actual population in the three British districts at that time, it is indicative of a steady rise in the population in the first half of the nineteenth century.

Population figures for the three eastern Asom districts, 1835[48]

District	**Area (sq. m.)**	**Population**	**Density per sq. m.**
Darrang	1,300	89,519	69
Kamrup	2,520	243,317	97
Nowgong	5,790	90,000	16
Total	9,610	422,836	44

[47] Tilak Chandra Majumdar names the *satras* attacked by the Burmese in the undivided Nagaon district. In this district there were all total 197 *satras*. Tilak Chandra Majumdar, *Abibhakta Nagaon Zilar Sattra Darpan*, Nagaon: Majumdar Puthi Prakashan, 2005.

[48] Captain Francis Jenkins, Commissioner of Assam, to the Secretary to the Government of India, Revenue Department, No. 5, 3 February 1836, File No. 298, Bengal Government (B.G.) Papers, ASA.

A section of this population, however, was not due to natural growth, but simply because more territories were added to the districts of Darrang, Kamrup and Nowgong from 1835 onwards. While the area under these three districts was 9,610 square miles in 1835, it expanded by 5291 square miles (a rise of 55.06 percent) to 14,901 square miles in 1853, thereby considerably enhancing the population of these districts. If these figures are to be relied on, there is a visible growth of population between 1835 and 1853 in the Valley. The density of population of the three western Asom districts grew from 44 persons per square mile to that of 55 per square mile.[49]

Population of the Brahmaputra Valley ('Assam Proper') in 1853[50]

No.	Name of Zillah	Total Area (sq. m.)	Area under Cultivation (sq. m.)	Population (Lakhs)	Inhabitants in each Sq. M.
1	Kamroop	3345	562	3,87,775	116
2	Nowgong	8712	276	2,41,300	28
3	Durrung	2844	346.75	1,85,569	65
4	Sibsagar	5440	256.17	1,59,573	30
5	Luckimpoor	9900	134	85,269	9
Total of Assam Proper		30,241	1575	10,59,513	35
6	Gowalparra	4104	677	1,41,638	34
Grand Total		34,345	2252	12,01,151	35

A comparison of the figures presented in the statistical tables of 1853 and 1877-78 demonstrates that there was a rise in the population of all the Brahmaputra districts during this quarter century. While in this period, more territory was added to Goalpara, Kamrup and Darrang, it was also taken away from Nowgong, Sibsagar and Lakhimpur. Even then, in none of the last three districts, the population declined in absolute terms, and the area under cultivation expanded in each of the districts. Even though the total area within the six Brahmaputra Valley districts declined from 34,345 to 21,475 square miles due to administrative alterations and creation of new administrative units/districts and

[49] Figures are rounded off. The exact figures are 43.999 and 54.670 respectively.
[50] A. J. Moffatt Mills, *Report on the Province of Assam*, Appendix 'A': Statistics of Assam, Guwahati: Publication Board of Assam, 1853, p.56.

thereby transferring a portion of the population out of the region, the total population increased from little more than 12 lakhs (1.2 million) to nearly 19 lakhs (1.9 million) in this period, an increase by more than 63 percent in 25 years. The density of population too more than doubled from 35 to 88 persons per square mile in this period. The area under cultivation in the same period grew considerably from 2,252 square miles to 3,307 square miles, showing an increase of 68 per cent. It was a result of gradual clearing of the fallow cultivable lands in the plains of the Brahmaputra, and also an increase in the land under permanent or stable settlement and agriculture.

Population of the Brahmaputra Valley Districts in 1877-78[51]

District	Total Area (sq. m.)	Cultivated (sq. m.)	Population	Density per sq. m.
Goalpara	4,433	1,040	407,714	92
Kamrup	3,631	844	561,681	155
Darrang	3,418	350	236,009	69
Nowgong	3,415	393	256,390	70
Sibsagar	2,855	522	296,589	123
Lakhimpur	3,723	158	121,267	39
Total	21,475	3,307	1,879,650	88

The number of inhabitants in Assam Proper, i.e., in the six Brahmaputra valley districts, was calculated to be 35 persons per square mile in the middle of nineteenth century. Such percentages are, however, extremely deceptive, in that they obfuscate and iron over regional differences in population patterns. Kamrup had the highest ratio of cultivated area to the total area (16.80%), and also the most densely populated district. The population of Kamrup by far outnumbered other districts. Certain divisions of Kamrup were comparable in its density to highly dense districts of Bengal or Gangetic plains, having a density of more than a thousand heads a mile. Darrang district in 1835 had a high population density of 65 persons per mile and land area was under cultivation 12.20%. In Goalpara

[51] *Report on the Administration of the Province of Assam*, *1877-78*, Shillong: Assam Secretariat Press, 1879, Statistical Returns D: Population, p. xiii. These figures roughly correspond to the estimate of 24,43,000 persons for the year 1874 arrived at by Amalendu Guha, which included the population of Cachar, Garo Hills and other hills districts in addition to Assam Proper and Goalpara. See Guha, *Planter Raj to Swaraj*, p.27.

district 16.50% of the total land area had been brought under cultivation, even though it had a smaller population compared to other eastern Asom districts of Kamrup and Darrang.

This evidence is contrary to the strongly prevalent colonial opinion, which assumed the force of a truism by late nineteenth century, that the peasantry in Asom were characterised by indolence and lack of enterprise. However, if the colonial records are to be believed, there was only a marginal increase in the population in the Valley in the last two decades of the nineteenth century. The 1881 census, the second of the decennial census operations undertaken by the colonial state in Asom, noted, "In the five upper districts of the Assam valley the population is sparse. They are divided into mauzas or revenue collection circles, each of which is in charge of a mauzadar or native revenue collector… The difficulty in this area lay in the fact that the villages are rarely compact, scattered houses and hamlets being found in all parts of the mauza."[52]

Population of the Brahmaputra Valley in 1881[53]

Districts	Area in sq. miles	Population	Density
Goalpara	3,897	446,232	115
Kamrup	3,631	644,960	178
Darrang	3,418	273,333	80
Nowgong	3,417	310,579	91
Sibsagar	2,855	370,274	130
Lakhimpur	3,723	179,893	48
Brahmaputra Valley	20,941	2,225,271	106

The census operations for 1881 counted 22,155 villages in Asom, of which 10,024 were in the six Brahmaputra Valley districts. Of this, an overwhelming

[52] *Report on the Census of Assam, 1881*, p.2.
[53] ibid., 'General Area and Population', p.22.

number of villages amounting to 82.3% had a population of less than 500 inhabitants, out of which 67.6% villages had less than 200 inhabitants.[54]

Population of the Brahmaputra Valley, 1895-96[55]

Districts	Area (sq. miles)	Population	Density
Goalpara	2,958	452,304	153
Kamrup	3,660	634,249	173
Darrang	3,415	307,440	90
Nowgong	3,260	344,462	106
Sibsagar	2,822	457,274	162
Lakhimpur	3,723	254,053	68
Brahmaputra Valley	19,838	2,449,782	123

The above table shows that while there was a marginal growth of population density in Darrang and a marginal decline in Kamrup, the average density sharply grew in the districts of Goalpara, Sibsagar, Nowgong and Lakhimpur in the fifteen years between 1881 and 1896. In absolute terms, though the area under the six Brahmaputra Valley districts declined by 1,103 square miles in the period between 1881 and 1895-96, there was an addition of 2,24,511 persons.

The overall steady growth of population between 1872-1901, combined with other factors resulted in growing pressure on land and an expansion of the area under cultivation, primarily in the intermediate tract designated as the '*rupit mahal*', reducing the availability of land for future expansion in this tract, in spite of the widespread *kala-azar* or Black Fever that carried away a substantial section of the population in the last decade of the twentieth century.[56] This growth in population was aided by immigration of both tea-garden workers and Eastern Bengal peasants. While the migration of tea garden workers was

[54] ibid., 'Towns and Villages', p.137.
[55] ibid., 'General Area and Population', p.22.
[56] Guha remarks that the growth rate of population experienced during 1872-81 slowed down in the two decades of 1881-1901, and especially during 1891-1901, when this rate was 5.7 percent in the Brahmaputra Valley and a little more than 6 percent in Barak Valley. He further says that the "situation was more serious in the former than what the total figures reveal. Had there been no continuous immigration, the population would have actually gone down." In fact, the indigenous population of the Valley is said to have declined by 7.7 percent during 1881-1901. Guha, *Planter Raj to Swaraj*, pp.38-39.

primarily to the eastern Asom districts of Lakhimpur and Sibsagar in the Brahmaputra Valley, that of the East Bengal peasants was limited to the western Asom district of Goalpara in the first decade of the twentieth century. The following table shows the average annual immigration figures for tea garden labourers between 1876 and 1901 to the tea districts of Brahmaputra and Surma Valleys.

Immigration of tea Garden Labourers to the districts of Brahmaputra and Surma Valleys (1876 -1901)[57]

Year	Avg. No. of Immigrants Each Year
1876-1880	29,973
1881-1885	29,344
1886-1890	41,077
1891-1895	55,200
1896-1900	63,991

This expansion of cultivation was carried out by clearing forests and reed jungles not only in the '*rupit mahal*', but also pushed the margins of the submontane tract and the *chapori* land. The availability of land was further constricted or limited by two other major factors: the demarcation of reserved forests after the formation of the provincial Forest Department in 1870s, and the leasing of estates from land considered to be 'waste' for commercial purposes, most importantly for tea cultivation after 1850s.

The Census figures of 1911 showed the continuation of the overall trend of population growth. Importantly for the State, the growth rate of the indigenous population which was identified as 'Assamese' that showed a decline of 7 percent in 1901 turned around in 1911, and showed an increase at a rate of 11 percent.

[57] P. G. Metilus, Commissioner of Assam Valley Districts to Secretary to the Chief Commissioner of Assam, No.1096G, Gauhati 11 May 1903, Proceedings of the Chief Commissioner of Assam for Revenue and Agricultural Department, Nos.150-166, Rev.-A, June 1903, ASA. The total figures of tea garden workers immigrating to the Brahmaputra Valley districts between 1876 to 1885 were, 1876:34,283; 1877:31,897; 1878:43,061; 1879:24,712; 1880:15,913; 1881:17,116; 1882:22,559; 1883:32,148; 1884:45,511; 1885:29,398 while between 1895 and 1901 the figures were 1895:72,837; 1896:81,115; 1897:95,031; 1898:49,169; 1899:31,908; 1900:62,733; 1901:26,233. These figures are said to be reliably available from the year 1876 onwards.

Only Darrang, one of the district's most populous subdivisions, maintained a declining trend which was due to the continuation of widespread deaths from *kala-azar* in Mangaldai,. The following table gives the population figures from the Census of 1911.

Population of the Brahmaputra Valley in 1911[58]

District	Area in Sq. Miles	Density
Goalpara	3954	152
Kamrup	3858	173
Darrang	3418	110
Nowgong	3843	79
Sibsagar	4996	138
Lakhimpur	4529	104
Brahmaputra Valley	24598	126
Assam	61471	115

The Brahmaputra Valley showed a population growth of 18.7 percent between 1901 and 1911, of which 16.7 percent was said to be due to 'natural' growth. The increase attributed to 'unnatural' growth was mainly from immigration, and particularly to Goalpara from the neighbouring districts of Bengal, and was "so far confined to the areas near the Brahmaputra."

The fluctuations in the population were most visible in the permanently inhabited and cultivated tracts of the Valley, where the bulk of the population was concentrated. The density of population in the Brahmaputra Valley was less in relation to the neighbouring province of Bengal, and this was a cause of concern for the colonial authorities. Only a smaller portion of the total 'wasteland' grants allotted at concessional rates of revenue for tea cultivation were brought under the crop, and it was believed that a still greater degree of agrarian expansion in 'land-abundant' Asom was required for the progress of the province. But it was questionable whether Asom was as abundant in 'wastes' as

[58] *Report of the Administration Report of Assam for the Year 1911-12*, Shillong: Assam Secretariat Press, 1912, p.72.

it was made out to be by the colonial government, so as to attempt schemes of land 'reclamation'. As the latter developments demonstrated, and discussed in the following chapters, that agricultural land was already in scarcity by the turn of the nineteenth century in the flood-immune tracts of the six Brahmaputra Valley districts. This was accentuated by the closing-off of forest areas, grasslands, tea grants, and so on. This was to force the peasants to take up permanent habitation and cultivation in the flood-plains of the Brahmaputra – the riverine *chapori* and *char* lands beginning with the early decades of the twentieth century.

Closing-off of Forests

The areas of settlement in the Brahmaputra Valley – both permanent and temporary and cutting across the three distinct tracts discussed above – were interspersed with lands covered with hills, forests, jungles, reed, water-bodies, etc. depending on the extent and expansion of cultivation and human habitation. These lands were valuable and important sources of the people of the Valley for food, fodder, fuel, fish, building material, and other necessities. Though some of these were constituted as estates and *mahals* and *khats* and were entrusted to, auctioned or rented out to various officers or holders by the Ahom state, and the access to these estates was prohibited or restricted to the subjects, most of the land with such resources as a whole were freely accessed and used by them, and oftentimes during periods of crises such as heavy floods, famines, or wars, these became the last resort for survival. These were the suitable lands in reserve which were available to the people if they had to change their habitation and resettle in a new place due to social, political and economic reasons. Populations moved from one place to another to escape the ravages of war, disease, erosion and floods, drought, growth of population, to evade the burden of high rates of taxation or obligations, and so on. Forests and fallow lands, which were in abundance and within easy reach, were cleared and new villages were established by people on the move. Ready access to material for survival and sustenance even during the first years of clearing ground and settlement from the adjoining forests made the process of migration easier. If the tracts leased

out for tea greatly reduced the best areas available for future expansion of cultivation and settlement in the Valley, the formation of Forest Reserves and Grazing Reserves, selling off of mahals or estates of forest, grass, cane, etc. also brought about similar results. The best quality land available for the future expansion of permanent agriculture was cut down in the Valley by the end of nineteenth century. The access to the produce of forests, hills and rivers etc. were over time made more restrictive or even altogether prohibitive through various means during the colonial period.

Many forests were declared as reserved forests by the colonial government, a process which got further intensified after the formation of the provincial Forest Department. The colonial government downplayed the dependence of cultivators on forest produce in Asom. The administration Report of 1878-79 noted,

> Broadly speaking, it may be said that *the indigenous agricultural population in Assam does not to any great extent depend upon the forests for the supply of their requirements in wood and timber*, with the exception of canoes and trees for boat building. The splendid bamboo plantations and groves of trees which surround each hamlet furnish them, as a rule, with all the material they require for building and other purposes. And it may be added that Forest Administration in Assam has become necessary, not so much in order to provide permanently for the requirements of the indigenous agricultural population, as to provide the wood and other forest produce required by the extension of the tea industry, by the growth of trade and the development lines and means of communication.[59]

The Report on the Census of Assam of 1881 itself contradicts the above opinion, when it notes that for the Bodo people "Rice is the staple diet, but this is supplemented by a plentiful supply of vegetables, sometimes procured from the neighbouring forest, and it is seldom that they do not manage to procure some kind of animal food, flesh or fish, of which latter they are very fond."[60] This

[59] *Report on the Administration of the Province of Assam*, *1878-79*, Shillong: Assam Secretariat Press, 1880.
[60] *Report on the Census of Assam*, *1881*, 'Castes and Tribes', p.70.

aspect of rural life, however, was not typical for one particular community of the Valley alone, but could be extended to other communities of the Valley as well.

The declaration of Koklabari forest in Kamrup district in 1914 as a reserved forest was a typical instance of this process of dispossession. Lieutenant Colonel P. R. T. Gurdon, Commissioner of the Assam Valley Division wrote to the Chief Commissioner of Assam,

> As there were many objections from the adjacent villages, and it was apprehended that the formation of the reserve would bring in its train complications with the Bhutanese, the Deputy Commissioner of Kamrup at first did not consider the proposed reservation to be expedient. In consideration, however, of the fact that the area, if protected from fire, might grow good timber which might prove valuable hereafter, the Deputy Commissioner was asked to make an enquiry into the matter… *The subdivisional officer of Barpeta who held an enquiry into the case reports that the neighbouring raiyats who obtain forest produce from the proposed reserve for domestic use still object to the proposed reservation. The subdivisional officer consulted several leading men of the locality and they also oppose the proposal*. They know that the supply of forest produce will not be stopped altogether, but they fear that they will be unnecessarily harassed by the subordinates of the forest department after the area is reserved.[61]

The apprehensions and objections of the *raiyats* were however considered by the colonial administrators to be "unduly alarmist as there is ample land left for them outside the proposed reserve and the forest authorities", and thereby recommended the reservation of the forest. Previous to this letter, the Conservator of Forests also wrote in the similar vain on the subject to the Chief Commissioner,

> I have the honour to submit a copy of a letter…from the Divisional Forest Officer, Kamrup, containing a proposal for the reservation of a forest tract, about 20

[61] Lt. Colonel P. R. T. Gurdon, Commissioner of the Assam Valley Division to the Second Secretary to the Chief Commissioner of Assam, No.186R, Gauhati, 22 March 1914, Rev.-A, June 1914, Assam Secretariat Proceedings, Revenue Department, ASA, emphasis added.

> square miles in area, at the foot of the Bhutan Hills in the Kamrup district. It will be seen from the remark of the Deputy Commissioner made on the DFO's letter that *many objections have already been raised to the proposed reservation*. But as the DFO reports that there are no villages within three miles of the area proposed and the surrounding population has no right in or over it, the nature of the objections said to have been raised is not quite clear. All such objections can, however, be dealt with during the settlement proceedings, and I would request that a preliminary notification under section 5 of the Assam Forest Regulation may be issued as soon as possible.[62]

The above process led to the declaration of the Koklabari forest as a government reserve by the Revenue Department in April 1914. In the process, inhabitants of both the Valley as well as the surrounding hills were deprived from legitimate entitlements to the forest produce. While the objecting *raiyats* as well as the "leading men" in the above instance were all from the Valley, a large part of the forests in the hills were also brought under government control, seeking to deny the tribal society of a crucial source of reproducing life.

Similar instances of denying villagers access to forests so far used by them, could be witnessed in case of reservation of Borrajan and Bharjan Forests in Lakhimpur in 1916, near the town of Tinsukia. The Bishputia villagers objected to the proposed reserve on the ground that "they want to be able to graze their cattle and get fuel and timber from the area under consideration."[63] The government rejected the demand by arguing that the village was a mile away from the forest, and presumed that they never used the forest for grazing, because it was a tree jungle, and that the Bishputia villagers had access to other grazing fields. The objections of the inhabitants of Borbheta village on the northern border of the forest were similarly overruled, because according to the government, though villagers "say they have been there for 10 years, but look

[62] A. V. Monro, Conservator of Forests, Assam to the Second Secretary to the Chief Commissioner of Assam, No.219A, Shillong 21 August 1912, Rev.-A, June 1914, Assam Secretariat Proceedings, Revenue Department, ASA, emphasis added.

[63] 'Proceedings under Sections 6-8 of the Assam Forest Regulation, VII of 1891', by L. C. Clarke, Deputy Commissioner & Forest Settlement Officer, Lakhimpur, W. F. L. Tottenham, Conservator of Forests, Eastern Circle, Assam to Chief Secretary to the Chief Commissioner of Assam, No.A-53, Shillong 2 August 1916, Assam Secretariat Proceedings, Revenue Department, Rev.-A, September 1916, ASA.

like recent settlers and have not developed the land they have already taken up."[64]

The encroachment and forcing upon the tribal society of an alien law regarding control over forests was clearly evident in Captain Maxwell's report, the commander of the military expedition of December 1883 sent to take on the recalcitrant Aka tribes, who found that

> demarcation of the boundary, and the *gazetting of the forests as forest reserves*, *at once precluded* [the Akas] *from following their usual pursuits as regards this tract of country*; and for the purposes of hunting the most valuable preserves lie at the foot of the hills. Whatever the grievance may be worth, it is certain, I think, that in the savage mind a grievance did exist, and *an experience of hill tribes teaches me that a "land" grievance is the most deeply rooted of all grievances and is next to impossible to smooth.*[65]

During the first decade of the twentieth century, area under reserved forests in five of the six Brahmaputra Valley districts had gone up, and covered more than one-tenth of its total geographical area, as can be observed from the table below.

Distribution of Reserved Forests in the Brahmaputra Valley Districts[66]

District	Area under R.F. in 1901 (Sq. Miles)	Area under R.F. in 1911 (Sq. Miles)	Total Area in 1911 (Sq. Miles)	Percentage of Area under R.F. in 1911
Goalpara	721	884	3954	22.36
Kamrup	148	261	3858	6.77
Darrang	321	336	3418	9.83
Nowgong	143	198	3843	5.15
Sibsagar	876	1043	5208	20.03
Lakhimpur	340	333	4207	7.92
Total	2549	3055	24448	12.50

[64] Ibid.
[65] Quoted in Reid, *History of the Frontier Areas*, p.269, emphasis added.
[66] *Report of the Administration of Assam for the Year 1910-11*, Shillong: Assam Secretariat Press, 1912, p.22. R.F. denotes Reserved Forests.

Added to this process of closing off of forests was the policy of leasing out vast tracts of 'waste lands' for tea cultivation at throwaway prices to European companies and individuals who encroached upon the lands which were of great value to the communities that were living in their vicinity.

'Reclamation' of Land for Tea

In the colonial government's scheme of things, Asom on its north-eastern frontier had little intrinsic worth when it occupied the country in 1820s. The annexation of Asom was primarily to safeguard its Bengal possessions from the probable incursions of the Burma and the Bhutan kingdoms. Asom was to perform the primary role of a buffer state between Bengal and Burma, without putting an additional financial burden on imperial treasury for administering Asom. The colonial state perceived Asom as a kingdom of abundant land, lying unused at the hands of an indolent and non-enterprising people, and thereby handing over a much smaller amount of revenue to the state than its true potential. The 'discovery' of tea in the early years of British occupation raised the hopes of making Asom a remunerative territorial possession of the East India Company.

Tea required land which was free from inundations and had a good drainage system, etc. Lands close to the big rivers where inundations were regular was therefore not preferred, and so were the low-lying areas close to the river-beds where water could accumulate. So the strip of land attached to the river on both the banks of the Brahmaputra and its major tributaries were not the first choice for actual tea cultivation. *Char* and *chapori* lands in this land too were not considered fit for tea cultivation. The two preferred tracts for tea gardens were the undulating submontane tracts on the middle of the rivers and the hill ranges which was immune from Brahmaputra's floods, as well as the tract on the foothills of the hill ranges. And these were the tracts that were eagerly taken up by speculators and tea planters during the great 'Assam Tea Fever' of the nineteenth century. As one government report noted in the beginning of the

twentieth century, "*At the foot of the [Naga] Hills there is a continuous line of tea gardens* and in the neighbourhood of Nazira there are also some isolated blocks of tea cultivation."[67] These tracts were normally covered by forests of various kinds. These were the lands which were normally taken up for new settlements by migrating people of the Valley for diverse reasons. These lands were regularly broken up and forests cleared off in order to make way for new village homesteads and paddy fields. A large portion of the lands which could have come under the plough in future was set aside for tea culture. These were amongst the best land available for rice cultivation in the Valley, parts of which were now earmarked for meeting the demands of the colonial economy.

The regions assigned 'wasteland' neither were empty of human habitation, nor were they a waste for the inhabitants of the Valley. Various forest-dwelling communities inhabited these forest tracts, and depended on the sources of livelihood provided by it. Very few of them had anything to show of their rights or entitlements to ownership or property of the tracts they occupied. Most of the forest dwelling people lived in a subsistence economy; they were the original inhabitants and custodians of these forests. But they were thrown out of their forests both in the plains and the foothills by force or with a little remuneration to the heads of the communities, compelling them to move away in search of new settlements.

The land leased out as estates for the purpose of tea cultivation engaged in large scale encroachment on the common lands designated as 'government land' far outstripping their legally allotted amounts of land. At an initial stages of tea industry in Asom, the Commissioner of Assam informed the Tea Committee in Fort William in October 1836 that C. A. Bruce, the superintendent of government tea plantations in eastern Asom had located a few natural tea forests in the Matak country, and of Bruce's efforts to win over the chief, Matak Bar Senapati, much like what he had already arranged with the 'Singpho' chiefs, so that tea empire could expand unhindered by pushing the tribal communities out of their

[67] "Reassessment Report: Southwest Sibsagar Group, Kamrup District", Rev.-A, February 1906, Proceedings of the Lieutenant Governor of Bengal, Revenue Department, ASA.

land. Jenkins wrote that Bruce informed him about his efforts during "a recent visit [to] the Mattock country in the discovery of tea plants in several new localities, *in reconciling the Bur Senaputtee, who had evinced a good deal of jealousy in regard to our occupation of the tea plants*, to the proceedings of government and *inducing him to take upon himself the charge of the preservation of all the tea in his district*."[68]

The Commissioner was hopeful that "it will not be long before Mr. Bruce will be able to repeat an equal success in his negotiations with the Singpho chiefs, in persuading them also to feel that it is their interest to promote the views of government", an indication of the colonial intent to bring the influential sections of the tribal communities as accomplices to its rule. The contempt or even opposition of the chiefs to this intrusion of the British through acquisition of land was understandable, since among other reasons, the land sought by Bruce was cultivated or cultivable village lands. The object of the tea superintendent to go to the Matak country was to observe an 'unintentional experiment' on naturally growing tea-plants "on a patch of land where they had been cut down and deprived of the shade of the large forest trees by the villagers in preparing the grounds for a rice crop."[69] From the great quantity of tea-plants found to be growing in the wild in and around Sadiya, the government considered the need to protect them and the land on which they grew for future development, and for which to engage the native chiefs of that region for its growth, preservation, and protection. Not only that, colonialism envisaged the making of native chiefs the medium of propagating tea culture.[70] It was not long before the Bar Senapati, the chief of the Matak country and the Sadiya Khowa Gohain, the Khampti chief of Sadiya, were made to accede to the demands of the tea industry by giving away

[68] F. Jenkins, Commissioner of Assam, to G. I. Gordon, Secretary to the Tea Committee, Fort William, No.287, October 1836, Series XI: Letters Issued to Miscellaneous Quarters, Vol. 1, 1836, ASA, emphasis added.

[69] ibid.

[70] C. A. Bruce "suggests the expediency of adverting the plantations at Sadiya and distributing the plants amongst the native chiefs. This recommendation seems to me worthy of adoption for we are not certain, I think from the great quantities of tea plant lately brought to light, of securing a sufficiency of the indigenous plants without having recourse to any artificial plantations of these plantations whatever or at least at the expense of government for it appears certain that if the Chinese manufacturers succeed in making tea, that will be in demand for exportation, *the native chiefs will take care to propagate the plant to any required extent on being remunerated for the leave's supplies.*" ibid.

revenue-free land grants and government pensions to their families, but in turn taking away the control and management of their feudatories and the power to put its resources at the command of international finance capital.[71] Even when the colonial government intended to protect the rights of the tribal communities of their land and resources, it was in the final analysis, undertaken only to protect its own interest. As Jenkins wrote to Lieutenant Brodie,

> I have not the slightest wish to deprecate [the Nagas] of any part of their hills; my sole aim is to secure to them their own lands in perpetuity and to prevent their being now tricked out of what may seem of little value. The progress of tea cultivation may shortly make every foot of land valuable to them and feeling that they are now in their non age politically speaking, it seems our duty to protect their interests. Their interests are however really ours; the naga hills may become a den of robbers, if we allow these tribes to be unfairly dealt with and we may be involve in most serious disturbances in consequence. But the day is probably not distant when our supremacy must be fully acknowledged over all the naga hills and the resources of these mountainous tracts may become of very great importance. I look upon them as a certain heritage of our government and if they now be guarded from spoliation they may hereafter be very valuable to the state.[72]

Jenkins however was prompt in making it amply clear that it was not due to any feeling of 'paternalism' as many imperialist historians has ascribed to the British that such an approach was to be adopted, when he noted, "I beg to explain explicitly that I have no wish whatsoever that the nagas should not be engaged to cultivate tea, or their hills to be cleared but *my sole apprehension is that... the nagas may be cheated and the future interests of the government endangered*." But the Nagas, like many other tribal communities, were in fact cheated and "tricked

[71] By the middle of 1840, according to the suggestions made by the Commissioner of Assam, the family of the late Matak Bar Senapati was to "receive one-third of the net revenue of the [Matak] district, subject to a reconsideration when the assessment made upon the lands, with reference to the quality of lands to be assigned to each." Apart from this, each noble family was to get a piece of land, containing cultivated fields an jungle, in the immediate vicinity of their residence, and a pension. F. Jenkins, Commissioner of Assam, to Captain Vetch, Political Agent Upper Assam, No.378, Series XI: Letters Issued to Miscellaneous Quarters, Vol. 1, 1836, ASA.

[72] Francis Jenkins, Agent to the Governor General, N. E. F. to Lt. Brodie, Political Assistant in Charge of Zillah Seebpore, 18 September 1840, May-October 1840, Vol.VI, Series XI, ASA.

out" of their land through a gradual process in the coming decades which was started by the 'discoverers of tea' in Asom by Bruce, when tea estates – real or fraudulent – aggressively set out to acquire the lands of tribal communities in the foothills of eastern Asom.

The Commissioner of Revenue for the Assam Division was forced in 1843 to enquire into complaints of large-scale illegal land-grab against the Assam Company that had various commercial interests in the Valley, and to ask for a list of all grants made to the company together with a sketch map showing their relative position. The Sudder Board of Revenue in its letter to the Commissioner of Revenue noted, "Herring's letter accuses that whereas by the rules for grants of tea lands in Assam laid down by Lord Auckland, no company or individual can hold more than 20,000 acres. The Assam Company at the time of my application holds in one grant alone 70,000 acres and in their other numerous Barries along the Dibroo river in the Muttock country and in the southern division at least as much more."[73]

The grave possibility of land speculators 'tricking' the tribal communities out of their land was in the know of the colonial state. The Nagas who occupied the plains and foothills of the Brahmaputra valley where tea-plants and mineral resources were identified were particularly susceptible to such dispossession. The consideration of the fallout of such practices for the state however was based not on the concern that the tribes might lose out on valuable resources, but more on the apprehension that it might lead to discontent among the Nagas which would bring in disputes where the state then would be obliged to intervene, an eventuality that it sought to avoid. The state therefore strictly prohibited direct negotiation of speculators with the Nagas for land, which had already caused much trouble for the state. It was only through the state officials

[73] From the Board of Revenue, Bengal Government, Fort William, to the Commissioner of Revenue for the Division of Assam, No.5, 21 February 1843, Letter Received from the Board of Revenue, 1843, ASA.

that such transactions and transfers of land had to be initiated.[74] As Jenkins warned,

> I have not the slightest wish to deprecate [the Nagas] of any part of their hills; my sole object is to secure to them their own land in perpetuity and prevent their being now tricked out of what may seem of little value. The progress of tea cultivation may shortly make every foot of land valuable to them and feeling that they are now in their non age politically speaking, it seems our duty to protect their interest. Their interests are however really ours; the naga hills may become a den of robbers, if we allow these tribes to be unfairly dealt with and we may be involved in most serious disturbances in consequence.[75]

The patronizing tone and 'protectionism' of the official rhetoric notwithstanding, the colonial state was of course not averse to the use of force if persuasions and engaging with chiefs of tribal communities did not yield the desired results. The state was confident that those who could not be broken down by bribes could definitely be made to yield by the application of military force, and the possibility of this was not lost to the tribal chiefs too. For instance, it was during this period that two Garo villages Hullal and Khoorgoon owed the government Rupees 128

[74] From F. Jenkins, Commissioner of Assam, to Lieutenant Brodie, Political Agent in Charge of Zillah Seebpore, No.660, 19 September 1840, Series XI: Letters Issued to Miscellaneous Quarters, Vol. 6, May-October 1840, ASA. Jenkins wrote, "you should strictly prohibit any speculators from entering into engagements with the Nagas except through or Captain Vetch. If the lands as Mr. Bruce says on our side of the Namsang, any reference to the Naga chiefs appears greatly to be deprecated in it may lead them hereafter to prefer claims to lands to which they have no right, and from their knowledge of Mr. Bruce's having held appointment under he government they may suppose his interference was of an official character. I think therefore, when Mr. Strong goes to Jaipore you will take care to have it made known that the gentlemen employed in the tea manufactories merely private individuals and have no authority from our government whatsoever… With regard to the boundary between us and the nagas [sic] I think this subject is of any little consequence; situated as the nagas are between us and the neighbouring great power, we must consider all the nagas on this side [of] the ridge of the Patkye as under our protection, and more specially those who are dependent on assam for their ordinary supplies of provisions. Knowing also the rude construction of these communities and their very backward state of civilization, we are specially concerned that they shall not have cause to offence against any of the people of the plains for fear of an indiscriminate retaliation upon our subjects and we must therefore as they are perfectly incapable of judging for themselves, take upon ourselves to see that they are not imposed upon. This cannot be done except all engagements are made with the cognizance of our officials… But the day is probably not distant when our supremacy must be fully acknowledged over all the naga hills and the resources of these mountainous tracts may become of very great importance I took upon them as a certain heritage of our government and if they now be guarded from spoliation they may hereafter be very valuable to the state… I have no wish whatsoever that the nagas should not be engaged to cultivate tea, or their hills to be cleared, but my sole apprehension is that if the engagements are not made with your full knowledge and approvals the nagas may be cheated and the future interests of the government damaged."

[75] ibid.

and 32 of *Nuzzerannzh* (*Nazrana*) respectively, and it was suspected that the intermediate Garo village of Subkheejora prevented or dissuaded these two villages from paying their due. The Commissioner ordered the troops to march upto the villages, collect the Nazrana, and also to levy a fine of Rs.3 per household from the third village which allegedly prevented the two Hullal and Khoorgoon from making the payments. But in case of the villagers failing to come up with the fine, the troops were ordered to consider the villagers as enemies, march into their territory and burn the villages.[76] The commanding officer was also directed to make known in the vicinity of the two villages that the government "will most severely punish any people who may attack them for being obedient to us and you must endeavour to make this extensively known among all the neighbouring class likely to annoy them."[77]

The use of force to subdue the independent tribes continued throughout the colonial period, which also was used for determining the shape and nature of future settlement in the Valley. Colonialism, with its instruments of coercive power as well as through bribery and corruption of a section of the dominant class within the tribal communities of both hills and plains, usurped their land and most of the traditionally recognised rights, pushed them into specified areas with most of the valuable land producing crops, timber, tea, coal, petroleum, and other resources taken away. Communities were branded either as Hill Tribes or Plains Tribes, and sought to be confined to the hills or the plains, thereby forcefully severing or constraining the old ties between hills and plains, and regulating through the Inner Line system.

The line dividing the plains and the hills was also envisaged as the line between civilization and savagery, between the settled and the mobile, between taxability of land and its non-taxability, etc. This plains-hill division was institutionalized

[76] From F. Jenkins, Commissioner of Assam, to J. Strong, No. 392, Series XI: Letters Issued to Miscellaneous Quarters, Vol. 1, 1836, ASA. "If these last referred villages do not come to you, you will be good enough to request Lt. Abbot to march into their village with you and if you are of opinion that their disobedience was occasioned by conspiracy and that they have withheld payment under false pretences you will be pleased to impose a fine upon them and should they desert their villages and you can come to no terms after waiting some days you will be pleased to burn their villages and destroy all the crops and such grain as you do not consume or cannot carry off."

[77] ibid.

with the Inner Line, a conveniently amorphous and flexible border between the plains of the Brahmaputra Valley and its surrounding hills. It was flexible in that whenever it was felt that a prospectively profitable tract was demanded by the tea gardens, petroleum and coal prospectors, etc., the Line could be pushed up the hills and jungles to bring them inside the British administered area. In fact the colonial state in the initial decades of its rule gave a free hand to speculators and the agents of private companies to acquire land directly from tribal chiefs by all means possible: through fraud, cheating, manipulation and bribery, and so on. The customary rights and entitlements of the tribal communities over these common lands were thus trampled upon or severely restricted. Persuasion, threat and intimidation, fine, looting, burning and killing, setting one tribal community against another or one section of a community against another, using one tribe to attack and defeat another tribal opponent, sowing discord, suspicion and animosity amongst tribal communities and clans, this was how a 'civilized' State was established and consolidated in the Brahmaputra Valley and its surrounding hills.

Whether in the hills or in the valley, the colonial state successfully nurtured and protected an influential section from amongst the indigenous communities who were instrumental in consolidating foreign rule in the region. They became an important column in the defense of the colonial economy, for which they were remunerated through various means, one of them being the *posa*, or 'protection money'. Still coercion and force was liberally used by the colonial authorities in the frontiers, the scale, extent and frequency of this violence against the 'hill-tribes' was so high as to make even the Governor General anxious in 1840, and had to demand restraint and discretion of the British military officers engaged in the frontier in directing State violence against the recalcitrant tribal communities.[78] The Valley worked as the centre from where the colonial policies,

[78] The Commissioner of Assam wrote to Captain Vetch, the Political Agent of Upper Assam, "His Lordship [the Governor General/Viceroy] regrets extremely to observe the frequent necessity of resorting to measures at retaliation, and I have to request your entrust attention to the measures which his Lordship desires you to adopt in all cases of aggression by the hill tribes, and I trust you will duly inculcate on the officers under you the great anxiety of Government to win over the barbarous mountaineers by kindness and conciliation rather than to coerce them by severe measures of reprisal and punishment." From F. Jenkins, Commissioner of Assam, to Captain Vetch, Political Agent,

campaigns and rules were directed and extended all around. Hill communities were induced to settle in the plains when it favoured the latter diplomatically, politically, and militarily, which would open up opportunities to the government to make use of them in its relations with the hill communities.[79]

Similar were the course of events in those tracts of the Brahmaputra Valley, mostly on its upper reaches, where minerals such as coal, petroleum, lime-stone, etc. were discovered and were profusely covered by forests, and leased out for exploration. The history of the Inner Line is replete with instances where all the valuable tracts in the plains as well as in the foothills were brought under the jurisdiction of the plains districts, pushed many of the tribal communities living there inside the Inner Line towards the hills and acquired their lands, and created an artificial distinction between the plains and the hills. This process tagged tribal communities in different artificial categories such as 'Hill Tribes', 'Plain Tribes', etc. and carved out different political and administrative units as Hills and Plains.[80] Many communities lost possession of their ancestral lands and its produce, and were forced not only to change their place of settlement but also forcing transitions in their ways of life.

The manner in which the colonial government tweaked its own laws in order to facilitate the takeover of the land by private corporations hitherto controlled and used by the tribal communities is quite evident from the extension of the Lakhimpur Inner Line boundary in 1914, though this is by no means the only instance of its kind. Rather, the entire history of colonialism in the Brahmaputra Valley and in the region termed the North Eastern Frontier of British India in general is replete with a series of measures through which the indigenous people

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Upper Assam, No.345, 8 May 1840, Series XI: Letters Issued to Miscellaneous Quarters, Vol. 6, May-October 1840, ASA.

[79] "I am much gratified to find that the Gang Borahs [village headmen] of Sumigooding [an Angami Naga village] have come in, and that there is some prospect of your making an arrangement with them to settle on our lands and *to detach them from the Angamee community*... I sanction the expense of the presents to the Gang Borahs." F. Jenkins, Commissioner of Assam, to Lt. H. Biggie, Officiating Collector, Nowgong, No.388, 27 May 1840, Series XI: Letters Issued to Miscellaneous Quarters, Vol. 1, 1836, ASA.

[80] The Census Report of Assam for 1881 noted, "The districts of the Brahmaputra and Surma Valleys are known as the "plains" portion of Assam, and the hill tracts intervening between the two valleys are the "Hill Districts." The different portions differ considerably in their conditions, and are differently administered." *Report on the Census of Assam, 1881*, Introductory Chapter, p.1.

were dispossessed of their land and resources by using all means ranging from open use of violence or threat of it, to the employing of compensation, etc. In the present case, the Assam oil Company which was already running its refinery in Digboi in eastern Asom from 1899 – the first one in British India – applied in 1911 for a prospecting license in an area beyond the Inner Line boundary at the junction of the Dihing and Namchik rivers, where large deposits of oil and coal reportedly existed.

P. R. T. Gurdon, the Commissioner of Assam Valley Districts was at pains to point out that just a few scattered villages inhabited by "Khamtis, Singphos and Duanias, with a few Nagas" were said to have existed in the area. The Naga villages were four in number – Napang, Khasang, Majan and Namphai consisting of five, six, ten and twenty houses respectively. The people of the area, the Commissioner asserted, "are under no sort of political control. Each village has its Gaonbura [village headman] after whom the village is named. The Gaonbura… decides disputes if there any chances to arise." It was further proclaimed that "no political difficulties need be expected from the few scattered inhabitants". So it was not surprising that the government agreed with Gurdon's conclusion "that the mere fact that parts of the areas fall outside the Inner Line should not stand in the way of their development, [and] that the Inner Line should be extended in either case so as to include the whole area."[81] The accent of the Government of India to the proposed extension was received in early 1914, and the area included within the Inner Line subsequently.[82]

This process of dispossession in the region was accentuated by the 'tea fever' reaching a high pitch in the middle of the nineteenth century, and speculation on land was a swift business. Hundreds of speculators were descending on to the 'tea districts' of eastern Asom to grab land at throwaway prices from the government and sell it to prospective tea planters at high rates to earn windfall

[81] Lt. Col. P. R. T. Gurdon, Commissioner of Assam Valley Districts to Secretary to the Government of Eastern Bengal and Assam in the Revenue and General Department, No.688C, Camp Dibrugarh 4 August 1911, Assam Secretariat Proceedings, Revenue Department, Rev. Misc.-A, April 1914, ASA.

[82] N. E. Perry, Under Secretary to the Chief Commissioner of Assam, Revenue Department, to the Commissioner of Assam Valley Districts, Shillong 9 March 1914, Assam Secretariat Proceedings, Revenue Department, Rev. Misc.-A, April 1914, ASA.

profits in the sale of land. As the state saw it, the rapacious British speculators could go to any extent in acquiring any prospective land, even with the risk of bringing the state into undesirable conflict over land rights with tribal communities in the process.

Such was the manner in which tribal land was acquired that the state had to intervene, as in case with one speculator Edwin Vanqulin who obtained a large tract of land on lease south of Ladoigarh from the Namsangia Nagas. The Commissioner of Assam communicated such a case to the Bengal Government, so that it saw "what some planters would like to do, and what they would do if not checked."[83] The Deputy Commissioner of Sibsagar district wrote to the Commissioner about this case earlier,

> South of Ladoighur, and not far from the Gelekee Guard-house, is a piece of land which was formerly rented to a Mr. Brooke, who cultivated with tea. After the raid on the Gelekee ground, the manager, Mr. Smith went away, and the place was abandoned, and the pottah was in 1868 cancelled… It lately came to my knowledge that Mr. Vanqulin has commenced clearing on this land, and accordingly I sent for that gentleman, and today he appeared before me, and, in answer to questions put by me, presented a deed executed by four Sundikois of the Namsangia Chang, giving him the land on a yearly rent of Rs. 20. The land originally rented to Mr. Brook. The land [is] now given by the Nagas to Mr. Vanqulin. I would request to be informed whether Mr. Vanqulin should be allowed to remain on this land or whether he should be informed that by residing there he does so at his own risk. I would not recommend the adopting the latter course, for it will only make the Nagas still more punctitious [sic] as to what belongs to them and what does not; moreover, it may lead to other people taking up land south of the Ghur [Ladoighur], and eventually cause complications with the tribes. Certainly, *if we allow settlers to take up land south of the Ghur, we tacitly admit the land does not belong to us*.[84]

[83] H. Hopkinson, Commissioner of Assam, Shillong, to the Officiating Secretary to the Government of Bengal, Revenue Department, No.1594, 24 August 1872, File No.141-251, Papers 2, B.G., 1872, ASA.

[84] Major A. E. Campbell, Deputy Commissioner of Sibsaugor, to the Personal Assistant to the Commissioner of Assam, No.760, 10 August 1872, File No.141-251, Papers 2, B.G., 1872, ASA, emphasis added.

The Commissioner replied by directing that Vanqulin must not be permitted to hold the lease or to make any cultivation on the land in question, and to tell the Sundikois of the Namsangia Nagas "most explicitly" that although the British Government chose to abstain from any interference with such cultivation as the Nagas might carry on within British jurisdiction but beyond the regularly settled *mauzas*, "it nevertheless does not recognize the right of the Nagas to lease or alienate those lands in favour of anybody, whether European or Native, and they must strictly abstain from doing anything of the kind.[85] The Lieutenant Governor fully agreed to and approved of the Commissioner's decision not to allow Vanqulin to occupy the land.[86]

That the above was not an isolated incident, and that there was sharp contradiction developing between tea interest and the peasantry over questions of ownership, access, use and settlement of land in the Brahmaputra Valley is evidenced by a similar incident of forceful occupation of village common land by tea plantation. *Raiyats* of eight villages of Golaghat subdivision in Sibsagar district addressed a petition to the Chief Commissioner of Assam in February 1899 where they complained of

> the oppression, hardship, and calamity to which we have been, and are likely to be, subjected to in consequence of the tea plantations made in the midst of our villages by Mr. C. E. Peterson, in spite of the existence of the orders of refusal of land by several Assistant Commissioners of Golaghat, and in defiance of the appellate courts of the Deputy Commissioner of Sibsagar, the Commissioner of Assam and your honoured self, who have concurrently refused lands to Mr. C. E. Peterson, out of feelings and sympathy for us, the poor raiyats, who have mainly to depend upon the very lands (wanted by Mr. Peterson) for grazing purposes,

[85] J. J. S. Driberg, Officiating Personal Assistant to the Commissioner of Assam, to the Deputy Commissioner, Sibsaugor, No.1603T, 24 August 1872, File No.141-251, Papers 2, B.G., 1872, ASA.
[86] T. J. Chichele Plowden, Officiating Under Secretary to the Government of Bengal, to the Commissioner of Assam, No.4160, 18 September 1872, File No.141-251, Papers 2, B.G., 1872, ASA.

habitation, extension of cultivation, and expansion of villages along with the growth and increase of the population.[87]

The petition then went on to describe "the plans and devices which Mr. Peterson has taken recourse to in order to take up lands, bit by bit and plot by plot, for his tea cultivation on account of his failure to get lands from the authorities." Mr. Peterson, the proprietor of the Dygroom Tea Estate, applied in 1895 for 700 *bighas* of land in Maukhoa mauza, Golaghat for the expansion of his estate. The raiyats, coming to know of this application, put in their objection to the transfer of this 'Government land' for tea purposes. The manager of the nearby Halmira Tea Estate also placed an application requesting for the settlement of the same piece of land stating that his Estate had more claims since "the land applied for by Mr. Peterson in the Maukhoa mauza, village Gharkatia, had been, in or about the year 1881-82, applied for by Mr. Stevenson, manager of the Halmira Tea Estate, and had been refused to him on the grounds that it was wanted by the raiyats for grazing purposes and for thatch-cutting."[88] Subsequent to this application, the colonial government recognised that "this is grass land, very useful for thatching-grass and pasture, and has a water spring in it, from which water is used by the neighbouring villagers and cattle in dry season."[89]

The petitioners went on to state that "Subsequently Mr. Peterson having made his muharir, chaukidar and others apply for some of the very lands refused to him by the authorities, fenced about 94 bighas of lands, and then he himself applied for *patta* of 13½ acres of [the same piece of] land which he had…cultivated with tea." After the *raiyats* again submitted their objections, the district officer ordered in February 1897 that all lands occupied by Mr. Peterson in contravention of official orders prohibiting transfer of land be cancelled, his applications for more land in his name or his subordinates be rejected, and that he be not allowed any more land in the area in future. An area of 47 *bighas* which

[87] Petition from Tankesvar Surma and others, to the Chief Commissioner of Assam, Golaghat 17 February 1899, Rev.-A, January 1900, Nos.50-64, Assam Secretariat Proceedings, ASA.
[88] ibid.
[89] Inspection Report by Dandadhar Barua, Tahsildar, 30 November 1895, ibid.

Mr. Peterson had illegally occupied and cultivated with tea in the grazing grounds, however, was allowed to him.

> Ever since Mr. Peterson has obtained 47 *bighas* of land, he has realised or extorted from us about Rs.190 as damage on account of our cattle and buffaloes going into the land from the year 1896 to 1898… Not being satisfied with all these oppressions, Mr. Peterson caused one Chinac Koch, who had gone to his field to release his cattle by paying fine, to be severely beaten, which resulted in a criminal case; but it was subsequently compromised. From the 4th June to 6th August, for two months, we refrained from going to his garden to release our cattle lest we would be similarly assaulted… [Mr. Peterson] has destroyed all the thatching-grass by setting fire to it, and hoed all the lands, leaving only 6 or 7 *nols* from the villagers' homestead. Some of his cultivation is so close to the raiyat's houses that it is impossible for them to stay there. …Mr. Peterson thus makes his device and plan to get hold of the land and to practice upon oppression which, he thinks, will, in course of time, compel us to leave our heaths and homes, and to make room for the extension of his tea garden."

The *raiyats* complained that the land was occupied in collusion with local government servants such as the sheristadar, tahsildar and the mandal. Indeed, the tea planter stepped up his incursions after the filing of the petition against him, with the result that two of the signatories of the petition were compelled to quit their homes by Mr. Peterson, who ordered planting of tea so close to their homes that they could not even find a way out to go to their neighbours or to their fields, a second petition complained.[90] Official enquiries followed, and found the objections raised by the raiyats to be correct, that the tea planter "has got settlement for parts of the land by trick, which is not uncommon"[91], that taking advantage of the lax revenue administration in Golaghat "he applied for small parcels of this land in his own name, and for others *benami* through his

[90] Petition from Tankesvar Surma and others, to the Chief Commissioner of Assam, Golaghat 31 October 1899, Rev.- A, January 1900, Nos.50-64, Assam Secretariat Proceedings, ASA.

[91] From H. C. Barnes, Officiating Deputy Commissioner of Sibsagar, to the Commissioner of Assam Valley Districts, No.513R, Sibsagar 6 July 1899, Revenue A, January 1900, Nos.50-64, Assam Secretariat Proceedings, ASA.

chaukidar, until he has gradually obtained possession of 277 *bighas* of the very land which was originally refused to him."[92]

It was clear that the European tea-planters wielded enormous powers to influence the colonial state's decisions on the ground, and could easily get around unfavourable orders passed even by the highest colonial authority of the province, the Chief Commissioner. Indeed, it was clear that in a case of conflict between tea planters and peasants, it would be the former on the whole who would receive state's support and favour. In this case too, it was quite apparent that not only the native government servants were guilty of the illegal transfer of land to the tea estate in question, but higher colonial officials as well. As the Chief Commissioner Henry Cotton observed, "Mr. Jackson [the concerned Subdivisional officer], was certainly to blame, and passed a very improper order when he granted two leases in the reserved area, – one of 100 *bighas* and one of 91 *bighas*, on 11th November 1898. He may not have been aware that the lease of this tract had already been prohibited, but seeing that he made a local enquiry, and appears to have gone fully into the facts of the case, it is almost incredible that he should have been ignorant"[93]. This indicated to a conversion of interest between the state's officers and the tea planter.

For the efforts of the planter, he was rewarded with a 'legal' settlement of the land which he had occupied in the village grazing field, even though he did so in contravention of the colonial legal procedure. Law was not allowed to become an impediment to the interests of plantation capital, which could be conveniently tweaked without much difficulty, an occurrence which was not uncommon in Asom, the State itself admitted. The land already settled with Mr. Peterson in the grazing field, even though was against government orders, was allowed to stand, on the plea that it would not be a 'legal' action on the part of the State to cancel them because these *pattas* were issued by a competent government authority,

[92] From Secretary to the Chief Commissioner of Assam, to the Commissioner of the Assam Valley Districts, No.748R, Shillong 2 January 1900, Revenue A, January 1900, Nos.50-64, Assam Secretariat Proceedings, ASA.
[93] ibid.

and because the grazing field was not declared as a grazing reserve.[94] A government enquiry was constituted to examine the apparent collusion of interest between colonial servants and the tea planter, conducted by the Deputy Commissioner of Sibsagar, and his report of March 1900 to the government absolved all the officials of any willful conceit or corrupt practice, and the 'mistakes' were attributed to negligence or carelessness, for which mild 'censures' were undertaken.[95]

Force and oppression, trick and deceit, however, was resorted to by the planters only when the colonial State seemed to take steps contradictory to their interests, as was in the above case. But such instances were relatively less, compared to those where the State firmly stood with the plantation owners, individually and as a class. The almost insatiable demand for land by the tea industry was met by dispossessing indigenous inhabitants –in both hills and plains– from their lands, grazing fields, water-bodies, and forests etc. which were crucial for their survival. The land occupied by the tea industry was amongst the best available tracts of high lands immune from floods in the entire Brahmaputra Valley, and such land under the ownership of tea planters in the Brahmaputra Valley by the end of nineteenth century was not inconsiderable. As many studies have shown, only a small portion of this land was under actual tea cultivation, and there were various uses that these lands held by the planters were put to, apart from expansion of tea cultivation. But this effectively limited or reduced the land available for a growing peasant population of the Valley for agrarian

[94] P. G. Melitus, Commissioner of the Assam Valley Districts, to the Chief Commissioner of Assam, No. 2381L, Gauhati 17 November 1899, Rev.-A, January 1900, Nos.50-64, Assam Secretariat Proceedings, ASA. The Chief Commissioner agreed to this view by the Commissioner of Assam Valley Districts, and issued the following order, "Although the settlement of the lands referred to within the area which had been refused to the Halmirah tea estate and to Mr. Peterson, was improper and injudicious, yet, as the settlements have been actually made by officers duly empowered to make them, the Chief Commissioner considers it more than doubtful whether the settlements made on periodic lease can properly be cancelled now. Mr. Peterson should, however, be required to vacate at once any lands which he has cultivated without obtaining settlement, and care should be taken not to settle other lands with him in this locality." 'Resolution', *Extract from the Proceedings of the Chief Commissioner of Assam in the General Department*, No.12R, Shillong, 2 January, Rev.-A, January 1900, Nos.50-64, Assam Secretariat Proceedings, ASA.

[95] From B. B. Newbould, Deputy Commissioner of Sibsagar, to the Commissioner of the Assam Valley Districts, No. 2 Confidential, Sibsagar 5 March 1900, Rev.-A, August 1900, Nos.184-199, Assam Secretariat Proceedings, ASA.

expansion, and thereby accentuated the scarcity of cultivable land in flood-immune tract in the twentieth century.

It is in this context of a growing population of the Valley and an increasing pressure on the land available for future cultivation in the *rupit* or rice- tract of Asom in the late-nineteenth and early-twentieth century that we proceed to scrutinize the colonial policy of settling the Valley's uninhabited tracts with landless and poverty-stricken peasants from Eastern Bengal. Almost all of them were impoverished Muslim tenant cultivators under oppressive Hindu *zamindars* and landlords bound by exploitative production relations, with little or no claims on landed property back home.[96] These peasants, who were considered to be more advanced agriculturalists adept in raising cash crops were perceived by the colonial state as the answer to the 'indolent' Asom peasants, and to the 'problem' of land abundance. This colonial policy also triggered the forging of a new relationship with the Brahmaputra, as we shall examine in the next chapter.

[96] Aminul Haque Faraizi, *Bangladesh: Peasant Migration and the World Capitalist Economy*, London: Sterling, 1993; Willem van Schendel, *Peasant Mobility: The Odds of Life in Rural Bengal*, Assen, 1982; Kirsten Westergaard, *State and Rural Society in Bangladesh*, Boulder, 1980; M. Ameenul Haq (ed.), *Exploitationa and the Rural Poor*, Comilla, 1978.

CHAPTER IV

SETTLING THE RIVER: EAST BENGAL PEASANTS, AGRARIAN EXPANSION AND NEW RELATIONS WITH THE BRAHMAPUTRA

> *The animal merely* uses *its environment, and brings about changes in it simply by its presence; man by his changes makes it serve his ends,* masters *it. This is the final, essential distinction between man and other animals, and once again it is labour that brings about this distinction… Let us not, however, flatter ourselves overmuch on account of our human victories over nature. For each such victory nature takes its revenge on us. Each victory, it is true, in the first place brings about the results we expected, but in the second and third places it has quite different, unforeseen effects which only too often cancel the first…*
>
> - Frederick Engels, *Dialectics of Nature*

The rate of growth of the population in the Brahmaputra Valley during the last two decades of the nineteenth century, as we have seen in the previous chapter, was too slow for the liking of the colonial government. This was in spite of it being aware that the *raiyats* were recovering from the widespread outbreak of the epidemic *kala-azar* [Black Fever] in the last decades of the nineteenth century. The state had been making efforts to bring as much land in Asom under cultivation as possible throughout the nineteenth century, so that the revenue base of the state could grow accordingly. However, even after giving away large

tracts for tea cultivation, the quantity of cultivable 'wastelands' in Asom was considered to be quite high by its estimations, while the peasants remained 'indolent', 'ignorant' and 'non-enterprising'. It was rarely recognised that the problems besieging the agrarian society in Asom was not due to the lack of its peasantry's industriousness, but a result of the prevailing regressive production relations which colonial policy did not change, but in many ways strengthened. Nonetheless, the responsibility for the perceived agrarian stagnation was put on the certain inherent and essentialised character of the peasantry. As the hopes of a rapid 'reclamation' of land by enterprising and energetic Asom peasants receded from colonial considerations by the turn of the nineteenth century, the colonial state actively began to consider the possibility of utilising the East Bengal peasants to clear the Valley, a population which was considered to be made of hard-working, industrious and dexterous cultivators, with the potential to turn the unproductive forests of Asom into fields of fortune. This intent of the state was put into practice from the early decades of the twentieth century, initially in an ad-hoc manner but subsequently according to a plan. But the consequences of this policy had resulted in certain entirely unexpected and unintended outcomes, which also involved the forging of a new relation with the Brahmaputra, one in which the river emerged as a malevolent force of nature.

Living Close to the River

The expansive riverine tracts along the two banks of the Brahmaputra containing numerous *chars* and *chaporis* formed by the river were of interest to the colonial government, which was keen to put the fallows, forests and 'wastelands' of the region to productive use. As an official communication in 1904, referring to the *chapori* lands, described this landscape,

> [The nature of] cultivation is essentially fluctuating. These villages are situated on the riverain (or *chapari*) lands of the Brahmaputra and of its principal affluents. They generally include a core of established fields, occupying rather higher lands than the rest of the area, around which there stretches an expanse of long grass deeply flooded during the rainy season. Clearings are made in the

> grass by firing it, and on these clearings may be grown a crop of *bao* (long stalked) rice, also broad-casted, during the flood season, or a crop of mustard or pulse (*mati-kalai*) during the cold weather. The clearings are commonly abandoned after three or four years, eithr because the soil is exhausted, or because the growth of weeds defies cropping.[1]

In one of the early land settlements carried out by the colonial state in Asom, we find references to the settlement of the *chaporis*, the tract on the immediate vicinity of the Brahmaputra on both its banks. James Mathie, the collector of Darrang wrote to Francis Jenkins, the Commissioner of Assam in February 1835 about the settlement operations pertaining to the *chaporis*, the cultivation of which was fluctuating in nature,

> In the *jammah* I have included the amount for which the *chapurees* or islands thrown up by the Brahmaputra are farmed. A separate settlement is made for them, as they are farmed to the highest bidder. There are 13 *chapurees* registered, but as it is quite impossible to calculate what islands may be thrown up or carried away by the river during the year, depending entirely on the nature of the season, the settlement is made for a fixed *jummah* at the risk of the farmer, who is allowed to demand for such persons who may cultivate them the rates noted here: Buhuni Chapuree settlement [at] Rs. 700; Remaining 12 Chapurees [at] Rs. 7,000. *The soil of these islands is very productive, but the cultivators are subject to great loss by any sudden rise of the rivers*, and from the numerous wild animals and buffaloes which resort to the uncultivated parts.[2]

In the subsequent decades, the *chars* and *chaporis* where extensive cultivation of mustard and *ahu* –a variety of broadcast rice– was carried out but were left out of the regulations applied to the permanently settled land, were surveyed and brought under revenue settlement. Such tracts, though considered to be highly fertile due to the regular silt deposited by the river in the annual flood season,

[1] F. J. Monahan, Secretary to the Chief Commissioner of Assam, to the Secretary to the Department of Revenue and Agriculture, Government of India, Shillong, 4 December 1903, "Reassessment of the Assam Valley Districts", Rev.-A, June 1904, Assam Secretariat Proceedings, ASA.

[2] Lieutenant James Matthie, Principal Assistant to the Governor General's Agent, Collector and Magistrate of Zilla Darrang, to Captain Francis Jenkins, Commissioner of Assam, 15 February 1835, *Report on the Judicial and Revenue Administration of Assam, 1835*, File No.298, Bengal Government (B.G.) Papers, ASA. Emphasis added.

however, were under risk of sudden and damaging inundations, and hence yielded unpredictable harvests. Under the colonial land revenue policy of the nineteenth century, which generally retained the basic land-classification of the Ahom state, such land was categorized as under *faringati* or fluctuating cultivation, and assessed at a lower rate compared to the other two major categories of land, i.e., *basti* or homestead and *rupit* or permanent fields yielding transplant varieties of rice. The nature of cultivation here was classed as temporary, called *pam* cultivation, whereby the peasants created *pams* or temporary shelters away from their settled villages and on the banks of the rivers or river islands. They stayed there for the season to cultivate mustard and other dry crops, and returned to their villages with the crop after the season was over and the monsoon set in. Since after two to three years' of cropping the fertility went down in these riverine lands considerably, peasants abandoned it and took up other such tracts. They could come back to the same *char* or *chapori* land after keeping it fallow for a few years when the fertility was brought back by the river's silt.

Thus the tenure of land-holdings on these lands was also temporary, mostly under annual *pattas* or land-deeds as opposed to the decennial *pattas* issued for *basti* and *rupit* land (under the land revenue system introduced during Henry Hopkinson's chief commissionership in 1860s). The annual relinquishment rate of these *pattas* as a result of the temporary and unpredictable nature of cultivation was very high in comparison to that of the *basti* and *rupit* lands. Though this *pam* cultivation generally played a supplementary role in increasing the income of Asom's peasants, who invariably held *rupit* land in or near to his village, the income from *chapori* land was nevertheless crucial, since a considerable part of or the entire land revenue accruing on them was paid from the income earned by selling the cash crops grown on the *chars* and *chaporis*. It was an important source of cash, as mustard was one of the most valued marketable crops in nineteenth century Asom, and since the colonial state demanded cash payment of the rent as opposed to its predecessor, the Ahom state which predominantly collected it in kind, Asom's peasants considerably depended on the produce of their *pams* for paying up the rent of not only the

faringati land they owned, but also their *basti* and the *rupit* lands. This was the usual practice for a large section of Asom's peasants till the beginning of the twentieth century.

The colonial state perceived this form of cultivation to be wasteful, since the revenue generated from such land was much less compared to the *rupit* and homestead lands, but the peasants of the Brahmaputra Valley could not be persuaded or forced to settle and cultivate the *char* or *chapori* lands on a permanent basis. There is also evidence that migration from the riverine tracts to the interiors took place, at times induced by heavy inundations. As it was reported from the South Bank Group of villages in 1905, which saw a fall in the population by 4.72 percent between 1891 and 1901 due to the killer epidemic *kala azar*, "the fall could have been much greater for immigration from the *chapari* mauzas, which were subjected to heavy flood after the earthquake" of 1897.[3]

The demographic distribution of the population in the Brahmaputra Valley, as we have seen in the previous chapter, was not uniform but had distinct patterns. While the richest and the most well-off among the people, including the rich and middle peasantry, settled and owned the *rupit* tract between the river and the hills, the riverine tract and the submontane tract flanking the *rupit* tract from two sides were the home of those communities held to be of lowly social and ritual status in the caste-differentiated society. They included the tribal communities, the 'untouchable' or 'outcaste' communities such as the 'Doms' or Nadiyals, and others belonging to the oppressed castes. Significantly, one could see a general overlap of caste and class here, since the dominant castes predominantly inhabited the best *basti* lands, cultivated the best rice lands of the *rupit* tract and had the highest economic resources within the Valley, those who had land in the other two tracts, if at all, invariably owned land of inferior and less productive quality. Therefore it is hardly surprising to find that the blocks of land earmarked for the Colonisation Scheme to be opened up by the East Bengal

[3] 'Resolution', "Assessment Report: South Bank Group, Kamrup District", Rev.-A, October 1905, Assam Secretariat Proceedings, Revenue Department, 1905, ASA.

peasants in the riverine tract were those that were either owned or used by the deprived and marginalised people of the Valley. Mayang and Nij Ghagua *mauzas* added to the Nowgong Colonisation Scheme in 1929, was inhabited in general by the Mikir, Kachari and Lalung tribal communities, though much of their possessions had been denied any legal validity by the colonial laws.[4]

Apart from cultivation, the riverine tracts of Brahmaputra were grazing fields for the peasants where dairy products were produced and supplied to surrounding villages and towns. Thus, for purposes of cultivation and grazing, peasants and graziers used to inhabit or frequent these tracts, but the nature of such habitation was almost always temporary, some lasting for a mere season, and some other for a few years. It was only the Nadiyal and Kaibarta communities that depended on the river for their livelihood built their permanent abode on the immediate vicinity of the river. As such, the population on these tracts in the beginning of the twentieth century was sparse and dispersed, with a few small permanent villages along the river.

A section of the tea garden workers of Asom, who were part of the first large-scale immigration to Asom in the contemporary times, over time took to cultivation once their contracts with the plantation owners got expired, in spite the numerous hurdles put by the plantation owners to such outflow of their labour force, which they jealously guarded. Apart from expanding the tea industry and filling the coffers of the foreign monopolies as well as the colonial state with their back-breaking labour in the tea plantations of the province, they were also instrumental in expansion of rice cultivation in the Valley. As one government report found, the area outside tea gardens in Asom had been settled by the 'coolies' to a large extent, those who after spending a few years in the tea gardens settled in the nearby villages as ordinary cultivators. "The Land Revenue Report of 1928-29 shows 344,980 acres of Government temporarily-settled lands held in the plains districts by ex-tea garden coolies. In addition to this, 'time-expired coolies' [a euphemism for the ex-tea garden labourers from outside

[4] Proceeding No.55, From S. P. Desai, Officiating Director of Land Records, Assam, to the Secretary to the Government of Assam, Revenue Department, No.33/57, Shillong 13 October 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, June 1931, ASA.

the province whose contract expired], held 31,680 acres as sub-tenants."[5] The worker-turned-peasant had to supplement his income by working seasonally in the nearby tea-gardens, more often "at times when the regular tea-garden labour is insufficient, especially for plucking and hoeing, and when the ex-coolie is in need of ready cash."[6] Thus, the rise in the population of the Valley due to the inflow of the tea-garden labourers and their taking to cultivation was a welcome development for the colonial state. However, the scale at which this took place was not perceived to be adequate for the rapid rate of agrarian expansion which the state envisaged.

The riverine lands on the Brahmaputra were very much valued for its fertility and high productivity, and were subjected to constant struggles for control over them, many of these land disputes taking the form of litigations. The occurrence of such disputes was frequent with respect to the *char* and *chapori* lands on the Brahmaputra, given the fact that "the churs of the Berhampootur which are extensive are subject to encroachment and destruction yearly, and they are constantly being reformed".[7] In one such dispute, for which the records are available, Seebnath Lahiri, the '12 anna shareholder' of the Pergunnah Curraibaree, complained to the Board of Revenue of the Bengal government in 1853, challenging the apportionment of his property by the Commissioner of Assam on the basis that "a survey made in 1842 now 11-12 years ago so that must be an incorrect one". He wrote,

> The original survey itself was incorrect in as much as the descriptions of the lands were not surveyed but merely a distinction made between the high and the low lands and the face of the country in 3-4 years is quite changed. What was there jungle is now cultivation and vice versa and what was taken away by the waters has since reformed… With reference to Jugrah chur which has been made over to me it has been completely destroyed and eighteen of my villages –Julua

[5] *Report of the Banking Enquiry Committee*, 1929, p. 6.
[6] ibid., p. 7.`
[7] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.21, 30 January 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.

> and others– have been destroyed by a new nuddee [river] called Kuldee and they have since reformed in conjunction with the 4 anna share.[8]

The petitioner also contested the decision of the survey officials to exclude the 'Kallo chur' from the surveys and settlement as "as the chur is under very flourishing cultivation." Lahiri further complained that even after several petitions made to the district officials, the latter insisted that the lands did not "agree with" their surveys, and therefore appealed to the Board of Revenue to order fresh surveys of the disputed land.

Indigenous peasants in the early decades of the twentieth century were found to be clearing land for the expansion of cultivation in the *chapori* tracts as well as in the submontane region. There were also signs of the shrinking of land available for future cultivation and new settlements. As has been reported by the sub-divisional officer of Mangaldai in 1929, "it is felt that the local people have increased in population and it has been found that batches of local people are opening up lands in undeveloped areas as they have no lands near about their homes. They have opened land not only in Chaporis but also in high land jungles in the northern mauzas."[9] Similar instances of this phenomenon were earlier reported from Jorhat in 1905,

> The increase in the village population is greater than the in the *khiraj* area, due to the fact that the local capacity for expansion being limited… The settled area amounts to 87.2 percent of the total. Except in the flooded villages along the Kakadanga [River] there is scarcely any land available for rice cultivation. Land is in great demand through the [Central Jorhat] group and the possibilities of future expansion are limited.[10]

Other regions also witnessed agrarian expansion, and significantly, some of it towards the river-plain: "In the two most fertile mauzas of the [southern Jorhat]

[8] Petition from Seebnath Lahiri, the 12 *anna* Shareholder of Pergunnah Curraibaree, to the Board of Revenue for Lower Provinces, Fort William, 28 October 1853, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.
[9] S. Gohain, Subdivisional Officer, Mangaldai, ibid., p. 29.
[10] "Assessment Report of the Central Jorhat Group", Rev.-A, June 1905, Revenue Department, Assam Secretariat Proceedings, ASA.

group (Gakhirkhoa and the western portion of theAmguri-Kharikatia) an enormous expansion has taken place due in a great measure to the ease which the low-lying waste, covered for the most part with grass, ekra, tora or light jungle, can be reclaimed."[11] The people of the Valley were spreading out to new areas in the early half of the twentieth century, in a period when the second significant movement of people to the province from eastern Bengal began, first to the riverine tracts of Goalpara, and then gradually towards the eastern districts the Valley along the riverine tract on the Brahmaputra.

Settling the River: The East Bengal Peasants

"Padmar tufanē uraiyā nilo
amār sukher ghor,
ujān thēilya ailam ami
luitēr chor."[12]

"Padma hoitē ailam ami asāmeri chor
Barramputroi bhanglo amār shēina sonār ghor;
shei ghor chariya jabo kothāy upāy bolona
shara jibon dukhē gelo ārto shohēna."[13]

"Arē o nodi Burhamputra ki maya lagayli
Shukhēr bosti korlirē sara sari.
Karo bhangli joma jāmi, karo bhangli bhitarē bari
Amār bhangli nabin boyosher peeriti."[14]

Baapē dukkhot poriya kaandēre
maayer chokkhēr paani porēre
haayrē Burhamputra kashar bhangiyāre."[15]

[11] ibid.
[12] "The whirlwinds of *Padma* have blown away my happy home; now I come to the *char* of the Brahmaputra by swimming against the tide." Folk-songs of the East Bengal immigrants of western Asom, Ismail Hossain, *Asomor Chor-Chaporir Loka-Sahitya*, Guwahati: Banalata, 2002, p.18. I am grateful to Buno for the translations.
[13] "From the banks of *Padma* I came to the river-islands of Assam, The Brahmaputra also destroyed my golden home, Where do I go from here, can some one tell me? I can't bear this lifelong pain any more." ibid., p.29.
[14] "What magic have you done O river Brahmaputra! Destroying homes of happiness, You are breaking some people's land, some other's homes, And for me you broke my young love!" ibid. p.29.
[15] "My father is shattered, My mother crying relentlessly, O Brahmaputra, you are the destroyer!" ibid.,p.29.

The 1881 Census of Asom counted 280,000 persons who were born outside the province and had subsequently immigrated to Asom. Of this, immigrant tea garden labourers constituted 170,000 persons, 50,000 were 'temporary visitors' to the province, and 60,000 were settlers engaged in agriculture, trade and services. The figures, even though giving only approximate numbers and of doubtful accuracy, showed that while 40,000 persons born in Asom resided in Bengal according to the Bengal Census of 1881, around 30,000 Bengal-born persons resided in the Brahmaputra Valley. The exchange of population between the two neighbouring colonial provinces seemed mutual and near-equal in 1880s, if one leaves out the tea garden workers.[16] The official perception of a scanty population and abundant unutilized land, and its attempts to bring about an externally induced transformation through immigration, was to change this equation in the next few decades.

The colonial state in Asom was seriously contemplating the rapid reclamation of land under 'ordinary' cultivation through encouraging immigration from at least the first years of the twentieth century. Tea was a much-celebrated runaway success story, but the expansion of the area under cultivation by peasants was less than satisfactory for the state. The simple answer to the lack of progress in this direction was often attributed to the lack of enterprise among the Asom peasants, and the colonial dream of seeing a class of agricultural capitalists was yet unrealised. A prevalent stereotype within the colonial bureaucracy was that a numerically large peasantry led to a larger amount of land under cultivation. Since the natural growth rate of the Valley's population during the late nineteenth century was considered by the colonial state to be quite slow, infusing a migrant population into the province was actively considered from the beginning of the twentieth century. This commonly-held perception was expressed in an official communication in 1905, "The lower portion of the valley has lost population owing to the mortality from *kala-azar*", while in government's calculations, "the growth of the purely Assamese population in the

[16] *Report on the Census of Assam*, *1881*, 'Variations in the Population', p. 29.

upper portion has been exceedingly slow."[17] The most widely cited and appreciated model of success in the 'reclamation' of forests for rice production so far was provided by the colonial experience of Burma, and given its proximity to Asom, it was presented by the provincial government as the ideal model for Asom to emulate.[18]

It was of course admitted by the state that though the 'wasteland' that Asom could offer to the immigrant settlers was "very extensive", it was by no means so large as was sometimes claimed by over-enthusiastic official opinion. Of the area of uncultivated land with which the plains districts of Asom were credited, a very large proportion was considered by the native population to be permanently uninhabitable, consisting as they were of the riverine lands of the Brahmaputra and its principal tributaries, which were deeply submerged during a part of the year. Only certain forms of habitation were existent in those lands that were considered to be habitable temporarily and were attuned to the amphibious environs of the rivers. Conditions that prevailed in the extensive *chars* and *chapori* lands of this kind were "obviously not suited to permanent colonisation", even the government admitted in the early twentieth century.[19] Moreover, some parts of the Valley, particularly in the Darrang district, were endowed with stretches of savannah land between the riverine tract and the forest tract along the foothills, the fertility of the soil being poorer and the altitude too high for the culture of rice, were not favourable for crops that required a regular supply of water and a fertile soil.

What remained for future reclamation after excluding these apparently unfavourable tracts, the colonial state contended, was still a very large area of country available for permanent cultivation, sparsely inhabited by "Cacharis and similar tribes of Indo-Tibetan stock, whose neighbourhood is shunned by

[17] L. J. Kershaw, Officiating Secretary to the Chief Commissioner of Assam, to the Secretary to the Government of India, Department of Revenue and Agriculture, No.2531R, Shillong 5 June 1905, Rev.-A, June 1905, Assam Secretariat Proceedings, ASA.
[18] ibid.
[19] From L. J. Kershaw, Officiating Secretary to the Chief Commissioner of Assam, to the Secretary to the Government of India, Department of Revenue and Agriculture, No.2531R, Shillong 5 June 1905, Rev.-A, June 1905, Assam Secretariat Proceedings, ASA.

Hindus."[20] Two great difficulties still awaited the future immigrants, the government concluded. First, the initial cost of reclamation was very high, and second, the jungles of Asom were considered exceedingly unhealthy and dangerous to the health of those who ventured to clear it. The high mortality from dysentery and anemia among the labour-force employed by the tea gardens to clear land during the decades of rapid extension of tea cultivation in the second half of nineteenth century was presented as a testimony to this.[21]

Though the government was satisfied with the rate of expansion of the tea industry and its "pioneering" role in embarking on the "difficult and hazardous enterprise", the rate at which the country had been "opened up for ordinary farming is slower than might have been expected." During the past twenty five years, the area under general cultivation in five districts of the Asom Valley had expanded by "only 24 percent", and about a third of this increase was attributed to the reclamation by the tea garden workers who had been brought in by tea planters, and had subsequently migrated from their tea gardens to village settlements. Disappointingly for the state, there was no such rapid development comparable to what had been witnessed in the districts of Lower Burma. Some colonial administrators held that cultivation would have advanced with greater pace had 'colonists' been encouraged to take up land by the offer of revenue-free tenure during the earlier years of their leases. This concession was enjoyed by peasants who applied for land in Burma. Though the rules prevalent in Asom did not prevent its Chief Commissioner from granting land on revenue-free terms or at nominal rates, as indeed was done in leasing out land for tea cultivation, very little use had, however, been made of this power for the cause of extending ordinary cultivation, the government regretted. Thus it was always the practice in the Brahmaputra Valley during the colonial period to levy full revenue on newly-broken land from the first year of occupancy itself. The reasons for this is not difficult to ascertain, and was also admitted by the colonial government.[22]

[20] ibid.
[21] ibid.
[22] L. J. Kershaw, Officiating Secretary to the Chief Commissioner of Assam, to the Secretary to the Government of India, Department of Revenue and Agriculture, No.2531R, Shillong 5 June 1905, Rev.-A, June 1905, Assam Secretariat Proceedings, ASA.

Two reasons had so far prevented the colonial government from implementing the revenue-free grant to the peasants in the province. Firstly, the revenue procedure of the province did not recognise the difference between the shifting cultivation carried out in the riverine tract and the permanent cultivation of the '*rupit mahal*' that were free from deep inundation, with the result that a single set of rule had been applied to both kinds of tracts.

> Since in the Valley a large proportion of the total ordinary cultivation was under fluctuating system under which fields shifted every two or three years, the government feared that the grant of an initial revenue-free tenure of a few years in such lands would exempt the *raiyats* from the payment of any revenue whatever.[23]

Secondly, and more importantly, the state admitted that such concessions could have the "highly undesirable outcome" of inducing the tea garden workers who had served out their initial contracts to take up cultivation as peasant proprietors in large numbers, undermining the tea planter's interests and depleting their labour force. The colonial state in Asom, designated as a 'Planter Raj' by historian Amalendu Guha, was not prepared to take any step that could harm the interests of the tea industry and reduce its prospects of profit. As the government observed, betraying its role as the protector of plantation interests,

> the general offer of a revenue-free term would have the effect of tempting the tea garden employ coolies that have been imported at great expense, before the cost of their importation has been recovered. Since the cost of imported labour is so high that the planters would be ruined if their coolies generally left service at the end of their statutory period.[24]

Though the prevailing labour laws formally allowed the garden workers to leave their garden after the expiry of four years, coercive practices of the plantation owners stringently prevented the even the legally 'free' labourers from leaving.

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[23] L. J. Kershaw, Officiating Secretary to the Chief Commissioner of Assam, to the Secretary to the Government of India, Department of Revenue and Agriculture, No.2531R, Shillong 5 June 1905, Rev.-A, June 1905, Assam Secretariat Proceedings, ASA.

[24] ibid.

The provincial colonial government with Fuller at its helm was, it was claimed,

> while anxious to secure fair treatment and reasonable prospect to immigrants who owe their footing in the province to the initiation of the tea industry, *would be reluctant to see action taken, in the interest either of government revenue or of philanthropy, which would be at the expense of the capital that is invested in tea.*[25]

Tea garden managers in the Valley had already "assured" the colonial government that "the general offer of land with a revenue-free period would deplete their labour forces", when in 1888 the plantation owners suspected that the government was initiating a scheme to offer revenue-free land to 'time-expired' tea garden workers during the chief commissionership of Denis Fitzpatrick. After encountering strong objections from the "tea-planting community, it was made clear that *it was not the intention of the administration to offer this concession over the heads of the garden Managers.*"[26] The government conceded that "any attempt actively to encourage tea-garden coolies to abandon their service for ryoti cultivation would be greatly resented by the planters as involving unfair competition between their legitimate interests."[27] The colonial authorities were happy to live with the fact that

> [I]f the extension of ordinary cultivation has been impeded in the Assam Valley by limitations that were necessitated by the conditions of the tea industry, the growth of this industry has in return cleared and settled exceedingly large expanses of jungle country which were, apart from tea, of very little agricultural value.

As has been pointed out earlier in the present work –and by recent research on government forestry in South Asia– the land designated as 'fallow', 'wasteland', or "of little agricultural value" were of crucial importance for fulfilling the needs of villagers, forest dwellers and tribal communities, and indeed many of them

[25] ibid.
[26] L. J. Kershaw, Officiating Secretary to the Chief Commissioner of Assam, to the Secretary to the Government of India, Department of Revenue and Agriculture, No.2531R, Shillong 5 June 1905, Rev.-A, June 1905, Assam Secretariat Proceedings, ASA.
[27] ibid.

depended on these lands for their livelihood and survival. In the districts of Darrang, Sibsagar and Lakhimpur the area under tea in the early twentieth century constituted no less than a fifth of the total cropped area, and the produce of this fifth was considered to be of considerably higher market value than that of the four-fifth that were under 'ordinary' crops, and hence the latter had to give way to the former when there was a conflict of interest between the two.

The incumbent Chief Commissioner J. B. Fuller, it was said in 1905, was considering for the last three years the appropriate policies to stimulate the extension of *ryotwari* cultivation without offering a revenue-free term. The Indian government also accepted the provincial officer's conclusion that in place of such a concession, the rates for the assessment of wastelands needed to be substantially reduced, and the settlement records of Sibsagar and Kamrup convinced him that this measure would effectively encourage the *raiyats* to expand their cultivation. Yet, the Chief Commissioner wanted to "go farther than this in the riverain tracts", and inspired by the precedent of the Burma allotment rules, he was keen to "stimulate" the migration from Bengal which was already underway to these areas in a sporadic manner, by offering the future colonists a revenue-free term.

The colonial government had already taken a few steps in this direction by allowing small grants on favourable terms to "Hindustani settlers" along the Assam-Bengal Railway in the late nineteenth century, especially in the forested regions west of Lumding in Nowgong district. The migration of peasants from Bengal to the extensive *chars* of north Goalpara had also been encouraged during the first decade of the twentieth century by the offering land on easy terms. While doing so, however, the colonial authorities were careful not to allow "the benefit of the concession to unauthorized squatters", primarily to prevent the tea garden labourers from leaving their gardens, though the government contradicted itself by claiming that as a matter of law or declared policy, there was "no question whatever of prohibiting or discouraging time-expired coolies

from settling on the land."[28] As an indication of the fact that the colonial officials were not looking seriously at north India but rather towards eastern India for migration "in enormous a scale", it noted, "A connection exists between Assam and the congested districts [of Bengal], and it is expected that with the extension of the Eastern Bengal Railway to Gauhati, the intercourse between the two provinces will become much closer than it is at present."[29] This colonial expectation was to be materialised in the coming decades with the immigration of East Bengal peasants.

The flow of immigration picked up in the 1910s and 1920s. Which areas of the Valley did the Bengal immigrants mostly settle? As it turned out, a majority of them were made to inhabit the *chaporis* and *chars* of the Brahmaputra, and take up their land here for permanent cultivation and settlement. It was an environment which they were arguably familiar with because of the similarities with the conditions in their home district of Mymensing, but this pattern of settlement had far-reaching and unforeseeable implications, encompassing all aspects of social life in Asom, including the political, economic, social and cultural spheres in the late-twentieth century.[30]

There were many significant characteristics of this latest flow of immigration and settlement, which distinguished it from the earlier instance of migration to Asom, that of the tea garden labourers. The former settled down primarily on the riverine tract on the Brahmaputra, not only because they were accustomed to this environment back home and since such land was highly productive, but also because colonial policy allowed the East Bengal immigrants to take up only this type of land. Apart from cultivating rice, they also introduced the cultivation of jute, a high-value cash-crop, and land taken up for this crop grew steadily in the first half of the twentieth century. The connectivity provided by the Brahmaputra

[28] L. J. Kershaw, Officiating Secretary to the Chief Commissioner of Assam, to the Secretary to the Government of India, Department of Revenue and Agriculture, No.2531R, Shillong 5 June 1905, Rev.-A, June 1905, Assam Secretariat Proceedings, ASA.
[29] ibid.
[30] Myron Weiner, *Sons of the Soil: Migration and Ethnic Conflict in India*, Princeton: Princeton University Press, 1978; Monirul Hussain, *The Assam Movement: Class, Ideology and Identity*, New Delhi: Manak Publication, 1993; Sanjib Baruah, *India Against Itself: Assam and the Politics of Nationality*, Delhi: Oxford University Press, 1999.

and its numerous tributaries played an important role in the processing, transport of and trade in jute.

During the first few decades of the twentieth century, the settlement of East Bengal peasants expanded to cover the riverine tracts along the River Brahmaputra on the north and the south banks as well as its *chars* and *chaporis* spanning from the westernmost district of Goalpara through the districts of Darrang, Kamrup and Nowgong to parts of Lakhimpur. Along with the introduction of changes in the agrarian production process by the new peasants, there was also a marked change in the way the riverine landscape was put to use. The administrative integration of Eastern Bengal with the province of Asom and the emergence of the new province of Eastern Bengal and Assam in 1905 played a catalytic role to this process in its initial phase. Not only did the administrative set up underwent a change in this period, but also the usual landscape of the riverine lands or the *chaporis*, which were now showing signs of permanence after they were being inhabited by the East Bengal peasants. *The Report of the Banking Enquiry Committee* noted in 1929 that in the last twenty years a unique feature of Asom had been "the continuous stream of immigrants, mainly from Mymensingh in Eastern Bengal – who have spread out in large tracts of land in Assam Valley."[31] In their home districts, the peasants found the exactions under oppressive zamindari system and the pressure on the land too severe, and were attracted to Asom by reports of wide expansion of government wasteland under relatively lower revenue assessment. "The significance of the movement may be judged from the fact that 55.6 per cent of the total increase of 748,650 in the population of the Assam Valley between 1911 and 1921 was due to immigration. While part of this increase must be attributed to the importation of tea-garden labour, it is largely due to the immigration from Eastern Bengal of actual cultivators."[32] The changes brought in by the new settlers to the demographic pattern of the Valley were summed up by the *Report*,

[31] *Report of the Assam sBanking Enquiry Committee*, 1929, p.7.
[32] ibid., p.11.

> Before the immigrants from Eastern Bengal came to the province, there were large areas of waste lands in all districts. The indigenous Assamese, prior to that time, used to take up much land for cold weather crops, preferably near the bank of the Brahmaputra, on annual lease. These he would cultivate for three years or so and then throw them up, seeking fresh pastures of which there was [sic] abundance. After some years, he would go back to the previous lands, knowing that probably no body would have taken them up, as there was enough spare land for all. This was in addition to his permanent rice land in or near his village. *The coming of the Mymensingh people has changed all that. They have occupied most of those waste lands (frequently buying them at an exorbitant price from the Assamese who had them under annual lease) and brought them under permanent cultivation*.[33]

In the westernmost district of Goalpara too, there was a steady growth of the immigrant population. It noted that 57,000 immigrants in this district from came to settle in this district from Eastern Bengal before 1911. In the 1921 census it was calculated that nearly 20 percent of the total population was composed of such settlers, numbering around 150,000. "Since then immigration has extended especially on the low lands adjoining the Brahmaputra. There has also been expansion by Santals and others in the submontane tracts in the north of the district."[34] The practice of fluctuating cultivation and temporary settlement gradually gave way to permanent cultivation and habitation on the riverine tract.

> Up to about twenty years ago, the Assamese practiced fluctuating cultivation on the Chaporis mainly in growing cold weather crop but very large areas have now been brought under permanent cultivation by the Eastern Bengal immigrants. *The Chaporis of Barpeta subdivision show an increase of about 700 percent in the settled area in the last 20 years.*[35]

In fact, the Brahmaputra's *chars* of Goalpara district were not only cultivated but also permanently inhabited by the Eastern Bengal peasants in "a very large proportion". Their cultivation included *ahu*, *aman* rice and jute, the outturn and

[33] ibid., p.16, emphasis added.
[34] ibid., p.25.
[35] *Report of the Assam Banking Enquiry Committee*, 1929, p.23. Emphasis added.

productivity of which were highly dependent on the nature and timing of the annual floods. As the then Deputy Commissioner of the district noted, "if the floods are late and not extraordinary in height no particular damage is done. If on the contrary, the floods occur early in June before the crops are harvested, or very high so as to damage Amon and jute, the position of the people becomes very precarious."[36] The floods of 1921, however, took a destructive form, as "this year the floods came very early, before the ashu crop had been reaped. It died down after having done great damage and rose again higher than ever to complete the destruction of the first crop and the 'Amon' crop as well."[37] The Subdivisional officer who visited the *chars* under the jurisdiction of South Salmara police station, termed it an "abnormal flood, the like of which the people here have not seen for the last twenty years" and it had brought "untold miseries to thousands of people and cattle and has rendered many families homeless".[38] He reported,

> The damage done to the crops is simply shocking. I visited Jamriabari, Notibari, Khasertila, Monkola, Dolani, Gendoa, Bahadur Tari, Kushbari and Satsimla. Here to the whole tract of country from Chunari to Satsimla is a vast sheet of water. The people are living on rafts and changs and their crops have completely gone. Most of the people have nothing to eat and if immediate relief is not given to them, many people are sure to die of starvation. On hearing that I had gone to that locality about 400 men came on rafts and boats to see me and to apply for immediate relief… Several hundreds of people will die for want of food by the time flood subsides. I am of the opinion that extensive distress due to flood is present in Katlamari, Ramhori, Hojua, Chunari, Jamirabari, Notibari, Bhungbari, Nonkola, Satsimla, Tangbhita, Kushbari, Tagunbari, Bhobrabhita, Joleswar, Kadamtola, Joldoba, Phoringipara, Silapani, Simlabari, Ourabari, Lejam, Jamadarbhita, Sarakhowa, Rowkhowa and Tipara villages and that they mat be

[36] Lt. Col. A. Playfield, Deputy Commissioner of Goalpara, to the Commissioner of Assam Valley Division, No.782R, Dhubri 23 July 1921, "Flood in North Lakhimpur", File Nos. 110-123, Rev.- B, January 1922, Assam Secretariat Proceedings, Revenue Department, ASA.

[37] Lt. Col. A. Playfield, Deputy Commissioner of Goalpara, Extract from File No. Rev/878/21, No.736R, Dhubri 20 July 1921, "Flood in North Lakhimpur", File Nos. 110-123, Rev.- B, January 1922, Assam Secretariat Proceedings, Revenue Department, ASA.

[38] Report of A. Rahaman, Subdivisional Officer, Goalpara, to the Deputy Commissioner, Goalpara, Goalpara 21 July 1921, "Flood in North Lakhimpur", File Nos. 110-123, Rev.- B, January 1922, Assam Secretariat Proceedings, Revenue Department, ASA.

> declared Flood Affected Areas under Rule 18. Ninety percent of the sufferers are Bhatia Mussalmans. They could not sow their Ashu crop in time owing to the first flood which took place in the middle of Jaisto [ealy June] last and the crops they sowed after that flood have been damaged by the present flood. The same remark applies to the jute crop also…[39]

The Commissioner of Assam Valley Districts, who visited the flooded regions in September – almost two months after the floods had subsided – found that the "only mitigating feature is that these Muhammadan chur dwellers are accustomed to calamities of this kind and show great resisting power", even though both their rice and jute crops were almost totally destroyed.[40] He discovered that the poorer people had no food at all, and that many of them were subsisting on stalks of '*katchoo*' (arum) mixed with '*tush*', the inner husks of paddy, which was normally used as fodder for cattle. Some people were forced to make a living by cutting and selling '*jhau*' for firewood. Nowhere could he find any stock of food with the peasants, but this was seen not as a sign of their state of destitution, dismissed with the remark that "the Muhammadan chur wallah does not I believe keep large stocks". In any case, the officer held that "the physical appearance of the bulk of the people is the best test of the need of relief or otherwise", and in the present case, not quite unpredictably he found amongst the people he visited "no marked sign of emaciation."[41]

Colonialism and the Colonisation Scheme

The "Colonisation Scheme" was initiated by the colonial government in the second decade of the twentieth century in western and central Asom districts, aimed at an organised settlement of the ongoing immigration from Eastern Bengal to the riverine tracts of the Brahmaputra. The Scheme was initiated when in a conference of the members of the Assam Legislative Council in 1828, certain representatives objected to the manner in which the colonial government had so

[39] ibid.
[40] 'Note on the Inspection of Flood Relief Works in Goalpara' by B. C. Allen, Commissioner of Assam Valley Division, 26 September 1921, "Flood in North Lakhimpur", File Nos. 110-123, Rev.- B, January 1922, Assam Secretariat Proceedings, Revenue Department, ASA.
[41] ibid.

far been "allowing immigrants to settle anywhere they liked causing great disturbance to indigenous people".[42] It was then decided that the government would appoint a Colonisation Officer and select "suitable area of land in which alone these immigrants would be allowed to settle", and the settlers would be asked to pay Rs.75 for each acre or Rs.25 per bigha as premium on the land settled. An immigrant peasant willing to take up land under the Colonisation Scheme was to first apply to the colonisation officer with a fee of Rs.5, who would then demarcate the land for occupation. Another payment of Rs.5 was to be made when he received the annual *patta* the next year. After two years of cultivation, he was to pay Rs.5 of the *salami* (premium), and after the expiry of five years, he was entitled to receive a periodic *patta* for his land on the payment of Rs.10.

In Nowgong district, the scheme "started in November 1928 with approximately 28,000 bighas of land comprised in 29 villages along the bank of the Brahmaputra in Laharighat and Bokani mauzas. Almost the whole area suitable for cultivation has been settled."[43] The land brought under the Scheme was excluded from settlement under the existing ordinary rules. It was not surprising that the whole area under this 'Immigrant Group' of villages was *chapori* land. As the Settlement Officer of Nowgong observed, "The entire area of the group partakes of chapari character and is a formation by the action of the Brahmaputra."[44] For the State, this type of land was perfectly suited to the needs of the Eastern Bengal peasants and the crops they were to cultivate. The Settlement Officer in charge of the Nowgong colonisation scheme explained,

> Generally speaking the soil in the villages nearest the Brahmaputra is sandy… In such areas the Assamese used to practice their *pam* cultivation. The immigrants

[42] 'Extract from the Recommendation of the Retrenchment Committee', S. P. Desai, Officiating Secretary to the Government of Assam, Revenue Department to the Commissioner of Assam Valley Division,, No.2306R, Shillong 24 July 1931, Assam Secretariat Proceedings, Revenue Department, Rev.-A, December 1931, Nos.220-244, ASA

[43] S. N. Datta, Settlement Officer, Nowgong, to the Deputy Commissioner, Nowgong, No. 123S, 12 May 1931, Proceedings of the Chief Commissioner of Assam, Revenue Department, Rev. A, December 1931, 248-251, ASA.

[44] Memo by Settlement Officer, 'Assessment Report on the Immigrant Group (Nowgong District)', No.727S, Nowgong 19 February 1931, Proceedings of the Chief Commissioner of Assam, Revenue Department, Rev. A, December 1931, Nos.248-251, ASA.

> prefer this kind of soil for growing jute. *The area is annually submerged by the Brahmaputra flood and the soil which gives its best to jute cultivation comes out of water with its richness restored after the rains. Unless the floods are untimely, i.e., occur before the jute is high enough not to go completely under water or after the sali crop has been transplanted late in the season, the annual inundations are a natural process of fertilisation and most welcome. Without a normal flood even the steeping of jute for extracting the fibre becomes difficult in many places.*[45]

The kind of land to be cleared by the immigrant peasants taking up land in the Immigrant Group of villages under the Scheme varied in different localities and tracts. The nature of the overgrowth was a factor in the speed of clearance and cultivation, although the material conditions of the peasants played a more important role in determining their speed and ability to turn forests into fields. While the grass jungle commonly grown on the *chapori* tracts was easier to clear, the *ekra* or reed jungle –also a common vegetation of the riverine lands– took much longer and more effort to be made cultivable. More importantly, a poor or marginal peasant[46] took longer time to clear and cultivate than those with cash and food. Subsequent developments in the settlement of the East Bengal peasants in Asom was to demonstrate that the social and not the Natural conditions played a more decisive role in determining the pace and pattern of the ongoing 'reclamation'. As it turned out, the "Majority of the colonists have little ready cash or grain for their maintenance, while carrying on clearance of [their] allotted land. There are a number of cases in which the colonists have to work on other people's lands for their maintenance, while engaged in clearing their own land in the colonisation area."[47]

While touring the new settlement villages under the Colonisation Scheme in Nowgong in May 1929, the settlement officer noted exuberantly in his official

[45] ibid. Emphasis added.

[46] Poor peasants here are meant to denote those who has small amounts of land and other necessary means of production, but which is not sufficient for the sustenance of the family for the entire year, often forcing them to take up additional land on rent as tenant cultivators, or work as hired agricultural labourers. Marginal peasants on the other hand are those who are landless, and entirely dependent on tenant cultivation or agricultural work on other's fields for their sustenance.

[47] Settlement Officer of Nowgong, to the Commissioner of Assam Valley Division, No.227S, 7 August 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

diary that the scheme was going to be a success, as applications for land in large numbers were received both from "Mymensinghias and Nunias", denoting immigrants from the East Bengal district of Mymensingh and that of the Indian mainland (also termed 'Hindustani') respectively. A beginning had been made, he proclaimed, though the new settlers turned out to be "not typical of what we want", i.e., peasants with wherewithal, ownership of means of production and cash to take up large amounts of land, and who could undertake rapid agrarian expansion. Due to the vulnerable financial condition of the majority of the immigrants having land in these Colonisation blocks, they generally owned no more than 15 *bighas* of land per family on average, considered by the government to be not of large-enough size.[48] Though the settlement officers earmarked some additional land for each immigrant family residing in the newly settled villages to be taken up in the future, the transfer of land deeds was contingent upon their ability to pay a premium to the government and fulfilling of other terms and conditions of Colonisation, including the permanent residence on the area they till, which effectively meant permanently inhabiting the riverine and flood-prone tract.[49] Even if immigrant families wished to take up more land, their inability to pay the premium was a major impediment. At the commencement of the Scheme, the rates of premium charged by the government were, "In the first year only Rs.2 per *bigha* is taken as premium from the colonists, the total receipt up to date being Rs.12,636. The second installment of premium at Rs.3 per *bigha* is due in the third year, and then the main Installment of Rs.20 not until the fifth year."[50] As per the Colonisation rules, the East Bengal peasant who failed to pay the premium was liable to be evicted from his land.[51]

[48] 'Note on Colonisation Scheme', Extract from the Tour Dairy of the Settlement Officer, Nowgong, for February and May 1929, in letter from H. M. Pritchard, Secretary to the Government of Bengal, Revenue Department, to the Commissioner, Assam Valley Division, No.1125R, Proceeding No.83, Shillong 3 April 1929, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

[49] "The settlers are not yet actually resident in these blocks. I have told the colonisation officer that the residence is a condition of settlement, unless a special exemption is granted… they will not be allowed to stay unless they accept the colonisation conditions, and have given them one month in which to pay their first premium", wrote the settlement officer of the Nowgong Colonisation Scheme. ibid.

[50] Proceeding No.92, from C. Gimson, Settlement Officer of Nowgong, to the Commissioner, Assam Valley Division, No.399S, 10 September 1929, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

This process of settlement did not always take place according to government's plans and under its aegis. A growing land market emerged in the colonisation areas where transactions were carried out outside the purview of the state and its laws, and therefore were termed by it as illegal. Native individuals with influence and power emerged as middlemen for such exchanges and speculations,[52] along with a section from among the immigrants themselves who played that role. It was noted that in Laharighat, an immigrant village in Nowgong, "One immigrant was said to be making a living by settling new immigrants within Assamese lines."[53] There were concerns circulating within the colonial Colonisation establishment that "The Mymensinghias… are getting out of hand", who were accused of "trying to settle in forbidden areas". Complaints of the prevalence of "dirty work" in a "condition of muddle and corruption" in the Nowgong settlement area were rife.[54], According to the colonisation officer, it was found in the immigrant villages that "the strong are trying to grasp more land than their share of land allotted at the expense of the weak"[55] Attempts on the part of the government to "see that land is not settled with men who do not cultivate it themselves", indicate that there indeed emerged a class within the immigrants who practiced subletting of land to their economically weaker fellow immigrants, or were simply engaged in speculation of land.[56] This was despite the express condition in the Colonisation Rules that "A colonist is not allowed to sublet his land", and the general perception that a family of immigrants "cannot

[51] Proceeding No.94, from C. K. Rhodes, Secretary to the Government of Assam, revenue Department, to the Commissioner of Assam Valley Division, No.3670R, Shillong 24 October 1929, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

[52] "I notice a rather subtle change that has come over the in Assamese Mymensinghia relations. Whereas in the past the immigrants planted themselves as close to the Assamese lines as they could with the intention (often successful) of spreading over it, *now wily Assamese are taking up land on the edge of Mymensinghia settlements in the hopes of large and early profits.* They are going especially to places where Mymensinghias are settling in uncultivated Assamese villages." ibid.

[53] 'Note on Colonisation Scheme', Extract from the Tour Dairy of the Settlement Officer, Nowgong, for February and May 1929, in letter from H. M. Pritchard, Secretary to the Government of Bengal, Revenue Department, to the Commissioner, Assam Valley Division, No.1125R, Proceeding No.83, Shillong 3 April 1929, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

[54] Proceeding No.112, 'Inspection Note', 1 February 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

[55] Proceeding No.92, from C. Gimson, Settlement Officer of Nowgong, to the Commissioner, Assam Valley Division, No.399S, 10 September 1929, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

[56] ibid.

ordinarily clear and bring under cultivation more than about 5 *bighas* of land in a year without hired labour which it is not easy to procure and impossible for the majority of them to employ."[57]

The initial exuberance of the colonial officials soon gave way to concerns about 'malpractices' in the Colonisation Scheme, as they complained of "some difficulties in carrying out the scheme" in 1929, its first year of operation. It was observed that there were instances of "forcible occupation" of land by immigrants even before the colonisation officers arrived at the scene and earmarked the land. They were accused of having "no *pattas*, and no rights." Moreover, indigenous peasants claimed ownership of their uncultivated lands in some of the areas brought under the Scheme, and "when the colonisation officer went to the villages to settle colonists, he was confronted by the *pattadars* who have now begun to take interest in their lands", forcing the exclusion of such plots of land from the Scheme.[58]

But the demand for land by the immigrant peasants was growing. In his report to the Commissioner of the Assam Valley Division, the settlement officer of Nowgong proposed that 29,976 *bighas* of land belonging to a block of sixteen villages in the Mayang *mauza* be added to the present Scheme, an addition to the original 28,000 *bighas* under it. He noted that the initial area earmarked for settlement with immigrants under the Scheme had nearly been occupied in entirety, "except for some land which has been washed away by the Brahmaputra and some which is unsuitable for cultivation." The proposed land in Mayang was of *chapori* character and on the Brahmaputra, a part of which was under fluctuating *pam* cultivation by the native peasants mostly belonging to various tribal communities, and where mustard was primarily grown.[59] On inspection of the settlements, it was found that at Jhargaon in the newly included

[57] Proceeding No.118, From Settlement Officer of Nowgong, to Commissioner of Assam Valley Division, No.227S, 7 August 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.
[58] Proceeding No.92, from C. Gimson, Settlement Officer of Nowgong, to the Commissioner, Assam Valley Division, No.399S, 10 September 1929, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.
[59] C. Gimson, Settlement Officer of Nowgong, to Commissioner of Assam Valley Division, No.500S, 22 October 1929, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

block of Mayang, "there were some protests from Assamese villagers on the ground that the land was required for them for their *pam* cultivation."[60] However, the protestations or objections from the natives were rejected by the authorities on the plea that "there is plenty of waste land left in the neighbourhood for the Assamese"[61] But the tension prevailing due to the conflict over land forced the district settlement officer to call a halt to any addition of land to the Colonisation Scheme in Nowgong, in any case for a few years, if not making a permanent halt.[62]

Nevertheless, the results of the work put in by the immigrants in clearing the riverine *chapori* tract and bringing it under cultivation and habitation seemed to have been startling for the colonial state. Significantly, not only did the quantity of land brought under cultivation expanded dramatically in some of the immigrant blocks, but its quality and character also underwent a change. As has been noted already, from being temporarily settled for fluctuating cultivation and classified as *faringati* (or its latter classifications such as *Dā-faringati*), the agrarian landscape in the riverine tract changed towards being permanently cultivated and inhabited (classified under *rupit* earlier, but now as *sali-tali, balia or kathua sali-tali* etc.). As one settlement officer noted in October 1930, "The immigrants who have taken up land within the last few years have cleared and regularly cultivated their lands from the very beginning and no land has remained as *faringati* from any deceptive appearance."[63] Two aspects of the agrarian life of the Valley demonstrated more than any other that the nature of the land on the river was changing; first, the rate of relinquishment of cultivated land in general and in the *chapori* tracts in particular showed a gradual decline, and second, the area under transplant rice grown in permanently held *rupit*

[60] Proceeding No.112, 'Inspection Note', 1February 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA

[61] ibid.

[62] The indigenous tribal communities continued to complaint against immigrant peasants in the decades to follow, and also at times demanded their eviction, as was asked for Nagendra Chandra Baro and others for "eviction of immigrants from tribal localities in Kamrup." File No. RS 19 of 1943, Assam Secretariat Proceedings, ASA.

[63] 'Assessment Report on the North-Western Group (Nowgong District)', Memo by S. N. Datta, Settlement Officer, Nowgong to the Director of Land Records, Assam, No.393S, Nowgong 31 October 1930, Assam Secretariat Proceedings, Revenue Department, No.140-155, Rev.-A, September 1931, ASA.

lands grew by replacing broadcast rice which was a major crop of the *faringati* land.

The rate of relinquishment of land in the Mayang and Nij Ghagua *mauzas* under the Chapori Group of villages in Nowgong, for instance, fell drastically within a span of fifteen years from 1915. This was despite the area being only marginally inhabited by the East Bengal peasants, which constituted not more than one-fourth of the total population of the blocks. While the total settled area almost doubled between 1915 and 1929, the rate of land annually relinquished by the landholders came down from almost 29 percent in 1915 to nearly six percent in 1929. The following table shows this phenomenon in the two *mauzas*:[64]

Relinquishment in Mayang and Nij Ghagua Maujas of Nowgong, 1914-1930

Year	Total Settled Area (in *bighas*)	Area Relinquished (in *bighas*)	Percentage of Relinquished Area
1914-15	34,035	9,790	28.76
1919-20	42,031	6,719	15.99
1924-25	51,876	8,884	17.13
1929-30	64,064	3,750	5.85

In addition, while the acreage under *ahu*, *sali* and *bao* varieties of rice in the Chapori Group in 1906 were 40.93%, 4.52% and 6.48% respectively, in 1929 the same changed to 13.35%, 11.73% and 37.51%. On the other hand, while 37.11% of the land was under mustard cultivation in 1906, it declined to 20.32% in 1929. As has been noted, "In the increase in the *sali* there is a clear indication that the country is changing from fluctuating towards permanent cultivation" and "The falling off in the percentage of mustard (as well as of *ahu*) is a clear indication of a move towards settled cultivation."[65] In bringing in this change in the character of cultivation, the colonisation officers argued, "The settlement of immigrants and the Colonisation Scheme has recently been a potent influence, both by

[64] Proceeding No.55, From S. P. Desai, Officiating Director of Land Records, Assam, to the Secretary to the Government of Assam, Revenue Department, No.33/57, Shillong 13 October 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, June 1931, ASA.
[65] ibid.

example and by raising the fear of a possible danger."[66] Though the evidence of this transition presented here is only from one Group of *chapori* villages, a similar trend could be witnessed in other groups of villages and regions settled by the East Bengal peasants as well.[67]

The practice of annual relinquishment of riparian *faringati* lands by the indigenous peasants at the same time went down after the immigrant settlements came up in the vicinity of their villages, since they now apparently preferred holding on to their land even if at the cost of allowing it to remain fallow. This phenomenon, the Settlement Officer of Nowgong felt, was more due to the fear that land once relinquished might "slip out of their hands altogether", though it was also reasoned that the native peasants were also impressed by the industry of their East Bengal counterparts, and therefore took to cultivation more earnestly.[68]

In Nowgong district, the Census of 1931 registered a significant increase of the population in Khathowal, Juria, Laokhowa, Dhing, Bokani and Lahorijan *mauzas*, which was considered to be due to large-scale immigration of settlers mainly from Mymensingh. The East Bengal peasants cleared tracts of dense jungle along the south bank of the Brahmaputra and occupied nearly all the lands which were open for settlement in the riverine tract. The outcome of this process and its contribution to a rapid enhancement of colonial revenue was greatly appreciated by the colonial government. The government was all praise for the newcomers,

> These people have brought in their wake wealth, industry, and general prosperity to the whole district. They have improved the health of the countryside by clearing the jungles and converting the wilderness into

[66] ibid.

[67] A similar trend was visible in the Northwestern Group in Nowgong district. Whereas in 1914-15 the percentage of relinquished land to the total settled area was 9.11%, it came down to a negligible .08% in 1929-30. 'Assessment Report on the North-Western Group (Nowgong District)', Memo by S. N. Datta, Settlement Officer, Nowgong to the Director of Land Records, Assam, No.393S, Nowgong 31 October 1930, Assam Secretariat Proceedings, Revenue Department, No.140-155, Rev.-A, September 1931, ASA.

[68] 'Assessment Report on the Immigrant Group (Nowgong District) 1931', S. N. Datta, Settlement Officer, Nowgong, No.727S, Nowgong 19 February 1931, Assam Secretariat Proceedings, Revenue Department, Rev.-A, December 1931, Nos.331-350, ASA.

> prosperous villages. Their industry as agriculturists has become almost proverbial and they extract from their fields the utmost that they can yield. Their love and care of cattle is also an object lesson to others. Government revenue has increased. Trade and commerce have prospered.[69]

The immigrant's inclination to undertake hard-labour and to survive difficult conditions was well appreciated, and though their efforts enhanced colonial revenue, the peasants hardly could improve their lot in their new home. If the objective of leaving their homeland was to escape the excruciatingly exploitative environs in search of a life of economic security, dignity and freedom, it is doubtful if the majority of them could find it in Asom.

'Why are they poor?'

Though the Colonisation Scheme was profitable to the colonial government, the immigrant peasants themselves could hardly retain the fruits of their labour, a fact that had to be admitted by the State itself. About the deplorable economic condition and plight of the '*charuas*' in general, an Assamese colonial bureaucrat posted in Barpeta provides incisive insights about their condition in the late 1920s. He observes,

> Today the immigrants have no way out. They have sold all their belongings at Mymensingh and when they come here they do not have a chance to get land easily. As soon as they come here they fall prey to Assamese middlemen and Dewanis, who rob them of everything. Then and then only they encroach on reserves and commit other offences as lands are scarce. Last year I think there were 700 encroachment cases. I issued distress warrants in about 300 cases, but 80 per cent of them could not realise anything. There was nothing in their houses which could be sold. I visited many of the villages of *Charuas* [inhabitants of the *chars*] and spoke to them… Assamese only work half a day. They work for the full day, their wives work, their children work and raise abundant crop; *why are they poor?*

[69] *Report of the Census of Assam*, *1931*

The immigrants could not provide him the answers. But the officer's own study and his experience of a particular incident brought him the answer. He found that the poor immigrant peasants were totally under the grip of the moneylenders, indebted to the hilt and under the spell of a vicious debt cycle. The moneylenders and *mahajans* were virtually running their own fiefdoms and *zamindaris*, the immigrants increasingly becoming tenants on his own land. He noted,

> Recently about a few months ago there was a theft case in a Saha's [moneylender] house at Sorbhog. During investigations the Police found rolls of bonds executed by *Charuas* where the amount borrowed is left vacant at 3 per cent interest per month. The *Charuas* cannot forget the high price of jute they once got some years ago. Therefore if a *Charua* has got 10 *bighas* of land he thinks that 3 *bighas* will be enough for his *dhan* [rice] crop. He cultivates jute in 7 *bighas*. He cannot take all the jute to *Hat* [the local market] at once. He goes to the *Hat* and sells jute, and he gets anything between Rs.4-8-0 to Rs.5 per maund. Our mauzadar is there, his *Mahajan* is there, and so as soon as he gets the money it goes. The man then purchases a red shirt for him or a red *sharee* for his wife and sweets for children and he comes back home with a rupee or so in his pocket. In this way he cannot save anything from jute. At the same time these 3 *bighas* of land do not give enough paddy to last to last to the end of the year. Then he goes to the *Mahajans* and *Mahajans* lend him more money and the immigrants get deeper and deeper in debt. There is a man called Biren Saha. I met a man who had a talk with him. I asked him how the *Mahajan* will realise his money? He said that the annual lands of *Charuas* cannot remain annual for ever. Some day they will have to be turned into periodic. At that time how will the *Charuas* keep their lands? These will be sold for debts. *My impressions are that small zemindaries will be created by the purchase of these periodic pattas. Nowhere in Assam Valley there is zemindary except in Goalpara and Kamrup. The Charuas will ultimately come into the grip of small zamindars, the very persons they tried to avoid in leaving Mymensingh.*[70]

[70] Statement by G. C. Bordoloi, Sub-Divisional Officer of Barpeta, to the Line Committee "about immigration generally", ibid., p.107, emphasis added.

The *Banking Enquiry* found that the substantial amount of money which annually pour into the immigrant areas in exchange of jute almost immediately went out of their hands to the traders who sell them their food-stuffs and imported goods as well as the lawyers and the moneylenders who demanded payment of for litigations and loans. The colonial authorities were also well aware of the vulnerability of the immigrant peasants, and suggested that "Any avoidable pressure should not be put on them, which will have a tendency to send them to the clutches of money-lenders."[71] Therefore, in spite of their income from land the immigrants "seldom become rich as they are spendthrift by habit, are prone to litigation and do not hesitate to run into debt…The Marwari mahajans are ready to accommodate them with loans at usurious interest so long as crop prospects are good.[72] The *Banking Enquiry Committee* also observed the economic vulnerability of the immigrant peasants while describing their condition of the Nowgong district:

> The special feature of the district [Nowgong] in the last twenty years is the opening up of the north of the district by immigrants from Eastern Bengal – mainly Mohammadans, and to a less extent Hindus – from Mymensingh. They have been able to bring large tracts under permanent cultivation, especially with jute. Those who were the first settlers are the most prosperous as abundant Government waste land was then available. Many of them now lend to those who came after them. The immigrants annually take advances mainly from the Marwaris which they repay from the proceeds of the jute crop. They have the reputation of clearing off with fair punctuality the advances when they have a good crop with a reasonable market price. When they have a surplus, however, they spend it extravagantly and have no idea of saving. The result is that they have to take advances later in the year for the next jute season, and they seem to be always in the hands of the Mahajans… on the whole the price of land has more than doubled in the last twenty years and that relinquishment of lands held for annual which used to be common is now comparatively rare.[73]

[71] Proceeding No.118, From Settlement Officer of Nowgong, to Commissioner of Assam Valley Division, No.227S, 7 August 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.
[72] *Report of the Banking Enquiry Committee*, 1929.
[73] ibid, pp. 21-22.

The economic condition of the immigrant peasants as a whole was even worse than poorest of the indigenous peasants, their position being in no way helped by the large-scale indebtedness which they suffered, primarily because of their jute-based cash-crop economy that was dependent on the fluctuations of the market controlled by middlemen and moneylenders. As has been noted,

> It is well-known that the immigrants are much more indebted than the indigenous Assamese… As the custom of the Mymensingh settlers is to take advances on the understanding that the crops, especially jute, are given in repayment, it is only expected that when the crops are poor debts should increase. The Mymensingh settler usually pays up his creditor when he has a good crop and if he has a surplus balance left after this, he does not, as a rule, save it, but invests it in the purchase of more lands, of a corrugated roof for his house or of expensive up-country plough bullocks or, as is too often the case, launches into unproductive expenditure.[74]

Very little could be saved by the immigrants even after a good harvest, but when it failed, their condition became much more desperate. The conflict with the indigenous peasants over cultivable land, which was said to become scarce as the twentieth century wore on, only added to the woes of the majority of the immigrants.

Struggle over Scarce Land: The Indigenous and the Immigrant Peasants

More of the *chapori* land on the Brahmaputra was sought to be opened by the colonial officials for new settlements in Valley districts. As was suggested by a colonial official in the Mangaldai district in 1938, "I am of the opinion that this *Chapari* area should be thrown open to the immigrants because Assamese people will not go there. These are lying vacant for so many years."[75] Similarly in Nowgong district too, it had been said that "The areas now reserved for

[74] ibid., p.40-44.
[75] Sub-Deputy Collector of Sadar Circle, Mangaldai Subdivision, Darrang in his deposition to the Line Committee, *Report of the Line System Committee*, Vol. II (Evidence), Shillong: Assam Government Press, 1938, p.85.

settlement with the immigrants fall within the colonisation scheme. These are all mostly out-of-the-way, low-lying swamps or flood-stricken areas where the Assamese, Nepalis, tea-garden coolies or people coming from other provinces do not like to settle."[76] However, the apprehensions of the colonial government that competing claims over land between the indigenous and the immigrant peasants might lead to conflicts spiraling out of hand, along with the unregulated nature of the settlement by the East Bengal peasants in the first two centuries of the twentieth century, prompted it to introduce the Line System, demarcating and segregating the indigenous and immigrant lands. As Amalendu Guha observes, "Administrative measured had to be devised to contain the conflict. The Line System – an idea that was first mooted in 1916 and adopted in 1920 – was such a device. Under this system, a line was drawn in the districts under pressure in order to settle immigrants in segregated areas, specified for their exclusive settlement."[77]

The image of the immigrant peasant presented by the settlement officers and shared by the Commissioner of the Assam Valley Division, that he was "something of a beggar on the horse back and has not learnt to bear the prosperity which a good season brings him: when he does so he will probably buy out his Assamese neighbours, line or no line" was not only confined to a section of the colonial establishment.[78] The taking up of the riverine *pam* lands by the immigrant peasants was accompanied by a paranoia, mostly articulated by a jittery Assamese middle class, that "the Assamese will be submerged by the Mymensinghia tide". The colonial state attempted to dispel such apprehension, in a manner the sub-divisional officer placed in Mangaldai argued in his letter to the Line System Committee in January 1938,

> There is some point in the fear of the Assamese that he will be submerged by the Mymensinghia tide. If I recollect right the density of population in parts of

[76] Statement by Mahammed Amiruddin, M.L.A., Laokhowa, Nowgong, *Report of the Line System Committee*, Vol. III (Replies to Questionnaire, Miscellaneous Statistics and References), Shillong: Assam Government Press, 1938, p.25.
[77] Amalendu Guha, *Planter Raj to Swaraj: Freedom Struggle and Electoral Politics in Assam*, *1826-1947*, New Delhi, People's Publishing House, 1977, p.206.
[78] Memo by the Commissioner, Assam Valley Division, No.84R, Guwahati 9 January 1931, Assam Secretariat Proceedings, Revenue Department, Rev.-A, Nos.140-155, ASA.

> Tangail subdivision of Mymensingh district is nearly 1,000 to the square mile, far in excess of what the land can support. On paper there is nothing to prevent this huge excess population from rushing to the empty spaces of Mangaldai and filling them up in a very short time. But in reality this is never likely to happen. *The Mymensinghias are a riverain people and the average Mymensinghia does not like to go far from the river on whose banks his crops of jute and mustard are best grown*.[79]

But even these riverine tracts emerged as a contested terrain between the supporters and opponents of the colonial immigration and Colonisation policy. The conflict was at two levels, one was the struggle for control over land, and the other was the question of identity. The colonial government's wishes that all contradictions between the newcomers and the old inhabitants would wither away once the East Bengal immigrants "settle down and become Assamese, learn the language in their schools and, while teaching their neighbours the advantages of expert cultivation… assimilate Assamese customs and traditions" was starkly in contrast to the prevailing social realities of the time.[80] Opinion on the issue was divided between the upholders of the interests of the indigenous and that of the immigrants. When asked, "Do you think that if these *chaporis* are thrown open to the immigrants the condition of the Assamese people will be materially affected?" since "the Assamese grow mustard and pulse in the Ranganadi *chaporis* of Darrang district", the answer from Kumud Ram Bora, an Assamese pleader from Mangaldai, was a predictable "Yes". Indeed, he truthfully represented the opinion of the contemporary Assamese nationalists when he went on to express his apprehensions. Bora observed, "I am very much afraid that the Assamese culture and civilisation will be gone if more immigrants are allowed to come in."[81] The cause of economic distress of the Asom's poor peasantry was soon traced to the coming of the 'aggressive' Eastern Bengal

[79] Statement by Mahammed Amiruddin, M.L.A., Laokhowa, Nowgong, *Report of the Line System Committee*, Vol. III (Replies to Questionnaire, Miscellaneous Statistics and References), Shillong: Assam Government Press, 1938, From the Sub-Divisional Officer Mangaldai, to the Secretary, Line System Committee, No. 156, 15 January 1938, p.105. Emphasis added.

[80] Proceeding No.85, 'Extracts from the Inspection Note of Nowgong by the Commissioner of Assam Valley Division', February 1929, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

[81] *Report of the Line System Committee*, Vol. II (Evidence), Shillong: Assam Government Press, 1938, p.93.

peasants. As an Assamese witness of Barpeta testified to the Line System Committee,

> The Hastinapur famine occurred on account of the fact that the indigenous people are now deprived of the *pam* land which has been occupied by the Mymensinghia people. For the same reason they have become very poor and cannot repay the loan they took from the *Mahajans*. Since the Mymensinghia immigrants came here the financial condition of the Assamese has become deplorable. Vast areas of land having been occupied by the immigrants the Assamese cannot keep buffaloes and milk has become very dear. Petty trades which were carried on by the Assamese formerly have now been taken up by the immigrants. Vegetables market is now in the hands of the immigrants.[82]

Due to such oppositions and protestations, there were suggestions from within the colonial bureaucracy that low-lying riverine tracts in some areas should be entirely reserved for the indigenous peasants who cultivate such land. One Assamese respondent to the Line System Committee demanded,

> in those areas specially in this Subdivision [North Lakhimpur of Lakhimpur district] where the fluctuating cultivation is in vague all available lands fit for fluctuating cultivation may be reserved for such cultivation by the Miris, Deoris, Khamties, Kacharies and the other Assamese '*Chaporials*' (i.e., those living in low lying areas like those of the Majulies in Sibsagar district and Telahi, Komolaboria, Dhokuakhana, Gohaingaon, Machkhowa, etc., in this Subdivision.).[83]

Concerns were expressed within the colonial bureaucracy that the *chapori* lands where fluctuating cultivation was practiced by the indigenous peasants could be the potential bone of contention between them and the immigrant peasants. Both were now competing for the same land, especially at a time when the pressure on land was on the rise and the land for expansion of traditional forms of

[82] Sonaram Chaudhuri, member of the Barpeta Local Board, ibid., p.131.
[83] 'Answers to the Questionnaire by D. Sarmah, the Sub-Deputy Collector, North Lakhimpur, *Report of the Line System Committee*, Vol. III (Replies to Questionnaire, Miscellaneous Statistics and References), Shillong: Assam Government Press, 1938, p.17.

cultivation to cater to a growing population was nearly exhausted in many regions of the Valley. The problem was compounded by the decline of uninhabited and unclaimed *char* and *chapori* lands still available on the Brahmaputra, an indication of which first came from the more populated western Asom districts, such as Kamrup. According to the report of the Deputy Commissioner of that district, "The immigration of Eastern Bengal Muhammadan settlers continued throughout the decade [1921-31] into Barpeta subdivision and parts of the Sadr subdivision. The *chars* and riverain tracts have now nearly been filled up and all available waste lands are gradually being occupied by them. The increase of 69 per cent in the population is solely due to the Eastern Bengal immigrants."[84] The Commissioner of the Assam Valley Division also noted, "Quarrels would be frequent in a fluctuating area because peace can be maintained only by careful respect of the rights of neighbours in the village. A man must have plenty of waste land in a fluctuating area in which to plant in succeeding years. He must allow his neighbour to do the same. A mixture of Assamese and immigrants would not be suitable as neither would respect the convenience of the other."[85]

But the conflict over land was not merely confined to the two neatly demarcated sets of people, the natives and the immigrants. The reality was much more complex. As land in the Valley, including in the *chaporis* and *chars*, were becoming scarcer primarily in the western Asom districts of Goalpara, Darrang, and Kamrup, instances of conflicts within the East Bengal peasants themselves cropped up more frequently. As the sub-divisional officer of Barpeta reported,

> The land which seems good to the *Charuas* [one who lives on the *chars*, meaning the Bengal immigrants] is not generally good to the Assamese. To-day lands suitable for the *Charuas* are almost all occupied and are getting scarce in this subdivision [Barpeta, of Kamrup district], and that is why almost 95%, if not 96%, of disputes for lands is between immigrants themselves. *Recent murder*

[84] Census Report of Assam, 1931, cited in ibid., p.2.
[85] K. Cantlie, Officiating Commissioner, Assam Valley Division, ibid., p.31.

cases for land are all between immigrants and immigrants because the particular kind of land they want is getting scarce."[86]

It is in this context, where the prevailing conditions generated by colonial policy forced both the native and immigrant peasants compete for the riverine tract of land on the Brahmaputra and its tributaries hitherto left out of permanent habitation or cultivation, that the impact of floods were registered in a new light, from a new perspective. Floods, which were so far considered to be normal and necessary, emerged as a force of malevolence and destruction in the course of the twentieth century.

Floods and the New Settlements

> *With the advent of the East Bengal immigrants the whole face of the country along the Brahmaputra… has undergone a tremendous transformation from 'chapari' and fluctuating into a permanent regular jute-growing area.*[87]

By 1930s the number of immigrants from Bengal to Asom was said to be around 5,00,000.[88] During that time, the results of immigrant Eastern Bengal peasants permanently inhabiting an cultivating the *chapori* or riverine tracts on the banks of the Brahmaputra came to the fore, being now regularly resulting in losses to them due to the floods and erosion of the river. As the Colonization Officer, who was in charge of the Scheme in the Nowgong district, when asked by the Line Committee, "There are 1,59,839 *bighas* in the scheme only 64,000 *bighas* have been settled. How do you say that there is no more land in the scheme? What has happened to the rest?" replied that "It has been made unfit for cultivation by the erosion of the Brahmaputra."[89]

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[86] Statement by G. C. Bordoloi, Sub-Divisional Officer of Barpeta to the Line Committee "about immigration generally", *Report of the Line System Committee*, Vol. II (Evidence), Shillong: Assam Government Press, 1938, p.107.

[87] Proceeding No.59, from S. N. Datta, Settlement Officer of Nowgong, to the Director of Land Records, Assam, No.205S, Nowgong 23 July 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, June 1931, ASA.

[88] Amalendu Guha, *Planter Raj to Swaraj*, p.206.

[89] *Report of the Line System Committee*, Vol. II (Evidence), Shillong: Assam Government Press, 1938, p.5.

Still, the preferred choice for the government to settle the immigrant peasants was in the vicinity of the Brahmaputra, as allowing the immigrants to take up land on the submontane tract could lead to clashes with the indigenous tribal communities. As the Sub-Deputy Collector of Kalaigaon Circle in Mangaldai subdivision of Darrang district noted in the context of expanding the Mangaldai Colonisation Scheme, "I want to take this 10,000 bighas [of the Orang Reserve Forest] because it is fairly high land and near the Brahmaputra."[90] The same officer observed, from the colonial government's point of view, that the riverine tract along the Brahmaputra was more preferable than the land further inland and between the riverine and submontane tracts. This was argued primarily on two grounds. First, it was claimed that such tracts were preferred by the migrants themselves, and second, that clashes with the indigenous people were less likely if settlements were allowed in the riverine tract, as these were sparsely populated. As the colonisation officer put it, "If some mauzas which are situated near the Brahmaputra and which are liked by immigrants are thrown open to them there will be no clash. But in some mauzas there should be restriction [to the settlement of immigrants]. I mean which are thickly populated [by the indigenous population]."[91]

Such opinion was also expressed by the Deputy Commissioner of Kamrup, who noted in 1938, "Eastern Bengal immigrants in Barpeta have cultivated watery areas that have never been taken up, and probably would never be taken up, by local people."[92] The stereotypical perception that Bengal peasants preferred the riverine belt, the tribal communities favoured the submontane tracts close to the hills, while the 'Assamese' wanted to stay put on the tract in between the two, had already crystallized within the colonial bureaucracy, which was reflected in the colonial settlement policy.[93] According to the colonial officials, practical experience vindicated such opinion. As an officer in Magaldai explained,

[90] ibid., p.79.
[91] ibid., p.79.
[92] *Report of the Line System Committee*, Vol. III (Replies to Questionnaire, Miscellaneous Statistics and References), Shillong: Assam Government Press, 1938, p. 11.
[93] *Report of the Line System Committee*, Vol. II (Evidence), Shillong: Assam Government Press, 1938, 89. When asked by the Line Committee, "You said immigrants like the *chapari* areas and do not like

> Sixteen thousand *bighas* of land in Kalaigaon circle, which is in the hinterland, had to be excluded from the colonisation scheme, because immigrants did not take up land there. Lands of some immigrants were washed away by the Brahmaputra and the Colonization Officer offered them land some distant from the river. These people came to me the other day and said that they would await the chance of some land near the river being opened in the future rather than accept the Colonization Officer's offer. *The number of immigrants will depend on the amount of riverine land available for settlement*. The Assamese raiyat on the other hand is principally a rice cultivator and except for the new *pam* farmers has no use for riverside land. So the area of possible conflict of interest between the Immigrants and the Assamese is not so wide as it looks at the first sight.[94]

Similar opinion was repeated by other colonial officials as well. The Colonisation Officer of Dalgaon, Darrang, noted that the immigrants generally wanted land close to the Brahmaputra, where they could grow jute, mustard etc., while on the other hand the 'Assamese' liked to take up low lands only where they could grow *sali* paddy. "So I do not see any reason why waste lands situated on the bank of the rivers can not be settled with the immigrants without any restrictions."[95]

Not only the Brahmaputra, but the banks of its major tributaries too were settled with the Eastern Bengal peasants, particularly in western Asom. As was reported by the Deputy Commissioner of Goalpara, that "Two important rivers, viz., the Manas and the Aie pass through the Bijni Duar and as the Mymensinghia immigrants like riverain places practically both the banks of these two rivers have already been occupied by them and I do not think that these immigrants

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to go to the northern part of your circle. Do the Assamese people like to go there?" the Sub-Deputy Collector of Sadar circle, Mangaldai subdivision replied that "Yes, these are all Kachari people and they like to remain on the hill-side."

[94] Letter No.156 of 15 January 1938, from the Sub-Divisional Officer Mangaldai, to the Secretary, Line System Committee, ibid., p.105, emphasis added.

[95] 'Opinion of the Colonisation Officer, Dalgaon on the Questionnaire', *Report of the Line System Committee*, Vol. III (Replies to Questionnaire, Miscellaneous Statistics and References), Shillong: Assam Government Press, 1938, p.9.

would like to move on to the interior of the northern portion of the Bijni Duar as there is no river or any other source of water supply in that area."[96]

The process and pattern of settlement bears particular significance to the present study, because it becomes evident that as permanent habitation grew and settled cultivation expanded on or close to the rivers –primarily the Brahmaputra– the annual floods as well as the high floods started to adversely affect their lives, not so much because the floods have become increasingly more severe, but because there were now more people and more property to be destroyed by the floods with similar or even lesser intensity and scale. The crucial significance of this transformation in the pattern of settlement from fluctuating to permanence had much to do with the changing relations with the rivers and the floods, and therefore this process begs a close historical scrutiny.

Barely two years after the Nowgong Colonisation Scheme was initiated in the predominantly riverine tract, the inundations of the Brahmaputra started to make their presence felt. Sand deposits brought down by the flood-waters covered 850 *bighas* of land belonging to 59 immigrant families in 1930 in the *mauzas* of Laharighat and Bokani, rendering it uncultivable.[97] Though the land made unusable for cultivation in this way was less than 2 percent of the total land under the Nowgong Colonisation Scheme, the significance of the damage lie in the fact that it occurred in spite of the claims made by the colonial officials that "The water level seems to have fallen over the whole area since the last settlement [in 1906] and inundations are neither so frequent nor so serious as before."[98] This assurance turned out to be badly out of tune with reality, and one can arguably infer that the colonial authorities deliberately undermined and

[96] A. Rahman, 'Report of Deputy Commissioner, Goalpara, on the Immigrant Question in that District', *Report of the Line System Committee*, Vol. III (Replies to Questionnaire, Miscellaneous Statistics and References), Shillong: Assam Government Press, 1938.

[97] 'Extension of Colonisation Scheme', Proceeding No.133, From S. N. Dutta, Settlement officer of Nowgong, to the Commissioner of Assam Valley Division, No.615S, Nowgong 20 January 1931, Rev.-A, Assam Secretariat Proceedings, Revenue Department, March 1931, ASA.

[98] Proceeding No.55, From S. P. Desai, Officiating Director of Land Records, Assam, to the Secretary to the Government of Assam, Revenue Department, No.33/57, Shillong 13 October 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, June 1931, ASA.

downplayed the possible effects of floods on the permanent inhabitants of the riverine tracts to hard-sell the plots of land under the Scheme.

Moreover, though it was assumed and assured by the government that the East Bengal peasants were adapted to a riverine life, the new conditions of an alien country was against the fast adoption of the ways of the natives who had a better knowledge of the terrain. Therefore, when the destruction struck, the government was forced to provide fresh land to the affected families as in many cases, the premium was already levied. Due to the already scarce government 'wastelands' were unavailable in the vicinity, 1297 *bighas* of the Dumkura Professional Grazing Reserve was added to the Colonisation Scheme in July 1930. Though the inclusion of this land in the Colonisation Scheme had multiple claims from the graziers and villagers, it was 'opened up' with the familiar argument that there was still enough land around for such purposes.

Migration of peasants in search of new land from one place of the Valley to another after their own was washed away by floods was becoming a common phenomenon in 1930s. It was reported that around hundred families migrated from Kamrup district to Darrang after they lost their land to the floods.[99] Likewise, the mauzadar of Bogribari in Barpeta subdivision of Kamrup district reported that

> The villages Lakhipur, Maheshkuthi, Marchakandi, Damdamia and others were washed away by Brahmaputra. People stayed there for 10 to 12 years. Those villages were washed away 3 or 4 years ago… There are 1,000 to 2,000 landless people in my *mauza* because Brahmaputra washed away their land. These landless people have been scattered. Some people gone [sic] to Noli, Pithadi; 1,000 people still remain in my *mauza*. They are remaining as *Kamlas* [agricultural labourers] to other people.[100]

[99] A. Rahman, 'Report of Deputy Commissioner, Goalpara, on the Immigrant Question in that District', *Report of the Line System Committee*, Vol. III (Replies to Questionnaire, Miscellaneous Statistics and References), Shillong: Assam Government Press, 1938, p.88.
[100] Statement by Maulavi Abu Sadat Bhuyan, Mauzadar, Bogibari, *Report of the Line System Committee*, Vol. II (Evidence), Shillong: Assam Government Press, 1938, p.124.

The Bengal peasants who lost their land and belongings to the floods or erosion aggravated the problem of landlessness and destitution in the region. A large number of the Bengal peasants who came to the Valley in late 1930s and 1940s could not own land due to the near-full occupancy of the tracts under the Colonisation Scheme, which substantiates the observation that even in the riverine tracts, land was increasingly becoming scarce. By 1938, in the Samaguri circle of Nowgong district alone, for instance, there were more than 20,000 such landless cultivators of East Bengal origin, even going by the conservative government estimates. The landless Bengal peasants were forced to work as *kamlas* (agricultural labourers), or cultivated on both immigrant and indigenous landowner's fields as tenants and as sharecroppers on *adhi* terms.[101]

With the kind of exploitative system in which the Eastern Bengal peasants were forced to work in the Brahmaputra Valley, it was not unusual to find them under utter poverty and destitution when floods swept over their lands and crops, which were not infrequent given the location of their habitation and cultivation. The Settlement Officer of Nowgong reported in August 1931 that

> the recent Brahmaputra flood, which is said to be the highest on record since 1907, has hit the people of the Immigrant and Chapori groups very hard. These areas suffered also from the last years' flood. The most affected are Bokani, greater part of Laharighat, Mayang, and nearly half of Ghagra. Certain areas of Laokhowa, Juria, and Dhing have also been badly affected… *The general fall in the price of agricultural products, –specially that of jute– have struck at people's economic vitality; on the top of this, these two successive floods with the attendant loss of crops, house – property etc., have rendered most of them, without at least a year's time to recuperate, unable to meet the increased demand of land revenue*, which has been proposed for the Immigrant group, and which has been sanctioned already for the Chapori group.[102]

[101] Statement by the Sub-Deputy Collector in charge of Samaguri Circle, Nowgong District, *Report of the Line System Committee*, Vol. II (Evidence), Shillong: Assam Government Press, 1938, p.12.
[102] Settlement Officer, Nowgong, to the Director of Land Records, No. 357S, 28 August 1931, Proceedings of the Chief Commissioner of Assam, Revenue Department, Rev.-A, December 1931, 248-251, ASA. Emphasis added.

Mayang *mauza*, to a part of which the Nowgong Colonisation Scheme was extended, was known to fall under a low-lying tract, often inundated by floods of the Brahmaputra. Six villages under ordinary cultivation were reported to be "completely washed away by the Brahmaputra" in the *mauza* between the years 1906 and 1930, while the area in another seven decreased due to erosion.[103] Likewise, in Nowgong district, "About 13,000 bighas in Laharighat and Bokani notified as Colonisation area has either been washed away by the Brahmaputra or spoilt by sand deposit."[104] The same wave of floods also affected the Immigrant Group comprising of Juria, Laokhowa, Dhing, Lahorighat and Bokani *mauzas* in Nowgong, in which "wide tracts of country covered by reed and grass jungle have been converted into open, clear, excellent cultivated fields" by the Bengal peasants.[105] Though claims were made by the settlement officer that "Floods of old days are now a rare occurrence" and that "The ordinary annual Brahmaputra flood enriches the soil and the methods of cultivation of new-comers take advantage of it", it was also admitted by the same officer that "Never within the last 20-25 years was there a flood of such magnitude as that of September 1930."[106] He further remarked, "It came at a time when jute had not yet been harvested fully and gathered in. *the Assamese* basti *occupy generally high lands, but the immigrants have settled in any available area*. In Laokhowa, Juria and Bokani the bastis went and remained under water for several days causing untold suffering."[107]

As a result of the floods, the colonial state was forced to consider the postponing of implementing new rates of land revenue settlement in the immigrant settlements of Nowgong district. The State rued the loss of land revenue and premium on land that was to be collected from the East Bengal peasants. For the

[103] Proceeding No.59, from S. N. Datta, Settlement Officer of Nowgong, to the Director of Land Records, Assam, No.205S, Nowgong 23 July 1930, Rev.-A, Assam Secretariat Proceedings, Revenue Department, June 1931, ASA.
[104] S. N. Datta, Settlement Officer, Nowgong, to the Deputy Commissioner, Nowgong, No. 123S, 12 May 1931, No.248-251, Rev.-A, Proceedings of the Chief Commissioner of Assam, Revenue Department, December 1931, ASA.
[105] 'Assessment Report on the Immigrant Group (Nowgong District) 1931', S. N. Datta, Settlement Officer, Nowgong, No.727S, Nowgong 19 February 1931, Assam Secretariat Proceedings, Revenue Department, Rev.-A, December 1931, Nos.331-350, ASA.
[106] ibid.
[107] ibid. Emphasis added.

State, the series of destructive floods was a throwback from the path of development and success of the Colonisation Scheme it envisaged for the immigrants. In what was termed as a 'reversal' of the Scheme in Nowgong due to floods, the Commissioner of Assam Valley Division observed,

> *The abnormal flood of last year has thrown things back badly just when the scheme was developing rapidly*. In a normal year it is probable that Rs.25,000 would have been realised as premium, in addition to the second installment [of land revenue]… nearly a quarter of the total area reserved for colonisation was either washed away by the last flood or damaged for greater or less periods by sand deposits."[108]

The distressful situation of the immigrant was accentuated by his near-complete dependence on the jute market for selling his primary crop, which was under the control of the Marwari trader, generally doubled up also as a moneylender. The destructive flood of September 1930 was accompanied by a "trade depression" and consequent 'abnormal' fall in the price of jute, which fell to a low Rs.3 per *maund*, which was even below the actual cost of production.[109] The price of mustard, grown as a second crop by many peasants, also experienced a downward spiral. To add to it was the reassessed rates of land revenue, through which the colonial state sought to increase the collection by as much as 50 percent in the Immigration Groups of *mauzas*. For instance, the total land revenue assessment of the Nowgong Immigration Group was increased from Rs.204,574 to Rs.303,816 in November 1931, a steep hike of 48.51 percent.[110] In a somewhat ironic portrayal of the situation, the Settlement Officer observed,

> The immigrant has been hit much harder than the Assamese. The former keeps no stock of paddy, takes heavy advances from the Marwaris or other Mahajans and grows jute which requires much outlay. Without a good price for jute, his

[108] A. H. W. Bentinck, Commissioner of Assam Valley Division to the Secretary to the Government of Assam in Revenue Department, No.349R, Gauhati 29 June 1931, Proceedings of the Chief Commissioner of Assam, Revenue Department, Rev.-A, December 1931, 220-244, ASA.
[109] 'Assessment Report on the Immigrant Group (Nowgong District) 1931', S. N. Datta, Settlement Officer, Nowgong, No.727S, Nowgong 19 February 1931, Assam Secretariat Proceedings, Revenue Department, Rev.-A, December 1931, Nos.331-350, ASA.
[110] ibid.

> domestic economy has got out of gear; he is out of pocket, has no money to pay his Mahajan and finds it difficult to raise a loan. The Assamese has got his *bharal* (granary); he is in no difficulty about food, though he has to deny himself a little of the ordinary amenities of life. The immigrant is a hard, tough man and no fatalist and is patiently working and waiting for better days; with the return of normal trade conditions his present distress will disappear.[111]

An appreciable hope, perhaps, but too distant from the reality, as more settlers came into the Valley in search of land to face even harder economic, social and political challenges than the early East Bengal settlers whose path they followed, not to talk of the challenges thrown up by the landscape. The government was also now doubtful of the success of the Colonisation Scheme, once the initial euphoria of land reclamation slowly died down, or in any case was tempered by serious concerns after confronting the hard realities. As the Retrenchment Committee of the Assam Legislative Council noted in July 1931,

> Progress of colonisation was not up to expectation on account of the unprecedented drop in the prices of jute which was the money crop of these people [East Bengal immigrants]. Government were considering whether they should not extend the scheme of *salami* to the ex-tea garden coolies who were now settling in large numbers in Nambor colonisation area, and whether they should not charge the same premium from immigrants from the Surma Valley who came and settled in the Assam Valley.[112]

The following table shows the total area of land settled with indigenous and immigrant peasants in the five years between 1938 and 1943, with the indigenous peasants owning land predominantly in the clayey '*Rupit Mahal*' tract and the submontane tract, while the immigrants in general possessing the sandy riverine tract on and around the Brahmpautra.

[111] ibid.
[112] Secretary to the Government of Bengal to the Commissioner of Assam, Darjeeling 24 April 1857, Series I: Foreign Department, for 1857, Vol.43, ASA.

Total Land Settled with Indigenous and Immigrant Peasants in Brahmaputra Valley, 1938-39 to 1942-43 (all figures in acres)[113]

Year	Settled with Indigenous Peasants	Settled with Immigrant Peasants
1938-39	775,046	193,795
1939-40	784,125	199,608
1940-41	790,386	206,275
1941-42	835,801	206,593
1942-43	849,499	209,345

As can be seen from a comparison of the above figures, though almost one-fifth of the total land in the Valley was settled with the immigrants by early 1940s, and primarily on the low-lying tracts along the Brahmaputra, the rate of agrarian expansion in this zone does not appear to be as dramatically high as it was at the beginning of the Colonisation Scheme in early 1930s. This also falls short when compared to the rate of growth in the land settled with the indigenous population, mostly in the clayey *rupit* lands as well as the submontane zone. While the land settled with the indigenous people grew by 74,453 acres or 9.6 percent between 1938-39 and 1942-43, those settled with immigrants grew only by 15,550 acres or 8 percent in the same period.

The importance of the Colonisation Scheme thereby came down for the colonial government within almost a decade of its initiation, as it failed to continue the high rate of agrarian expansion as distinct from indigenous agriculture.[114] But the dynamics of demographic distribution changed drastically as a result, along with which began a new relation with the Brahmaputra. The above developments are a strong pointer that the by-now familiar and oft-repeated imagery of floods in the Brahmaputra Valley, replete with the invocations of

[113] 'Reservation and Settlement of Land with Professional Graziers, Immigrants and Indigenous People', Assam Legislative Assembly Debates, 30 November 1943, pp.1055-1057, ASA.

[114] Even though the rate of agrarian expansion carried out by the immigrant peasants progressively came down, the overall area they cleared and brought under cultivation in the Brahmaputra Valley was by no means inconsiderable. It has been pointed out that "In the twenty years ending in 1950 the immigrants turned some 1,508,000 acres of forest into settled agriculture." Richard P. Tucker 'The Depletion of India's Forests under British Imperialism: Planters, Foresters and Peasants in Assam and Kerala', in Donal Worster, *The Ends of the Earth: Perspectives on Modern Environmental History*, Cambridge: Cambridge University Press, 1988, p.126.

'disaster', 'destruction', 'problem' etc., are neither ahistorical nor an eternally present 'curse' of Nature. Though natural factors could and did play a significant role in influencing the experiences and perceptions of a phenomenon like flood, and by extension the relation to the river, it would not perhaps be wrong to argue that in the final analysis, it is the social factors that played a more decisive role in forging a particular form of society-nature relationship. The experience of the immigrant peasants in Asom discussed in this chapter indicates that the emergence of the floods as a destructive force particularly to the peasants, which rendered them homeless, landless or destitute, was not just contingent upon a sudden and simple spurt in the river's waters, as might at first appear. Nevertheless, that the floods were known to be an old and expected visitor in the riverine tracts of the Brahmaputra, and often a welcome one, until its turbulent course was transformed into homes and hearths as a result of the policies of the incumbent ruling power, is often ignored. The apparent contradiction in the moods and emotions in the songs sung by the East Bengal peasant addressing the river in many ways expresses this dichotomy of our perception of the rivers with its double-life as a creator and a destroyer, one that helps reproduce life but also extinguishes it. The need therefore is to examine the prevalent relations within society no less than the river to find the factors that could turn a benevolent river malevolent, and its fertile floods a disaster. What the present chapter tries to demonstrate as regards the forging of this new and predominantly antagonistic relation with the Brahmaputra after the coming of the East Bengal immigrants, can also be extended to reflect on the later developments involving the river and the people of its Valley as the following chapters seek to do, although in a different context and under changing socio-economic and political circumstances.

CHAPTER V

FLOODS AND THE FIELDS

Jot nai baan, tat nai dhan.[1]

> *I should apprehend great changes taking place in this vicinity, even to the extent of loss of some of the villages from the ravages committed by the river.*
>
> -Captain Rutherford, 1829[2]

> *The darkest cloud has its silver lining and though the flood had damaged many a filed, it has considerably increased the fertility of the soil due to deposits of fine silt.*[3]

The occurrence of annual floods had been a common phenomenon in the Brahmaputra Valley. It was believed that they had a beneficial influence on agriculture, enhancing the soil quality and maintaining the fertility of the clayey

[1] "Where there is no flood, there is no paddy": an Assamese proverb. Dilip Dutta, *Khosa Bindha Buranji*, Guwahati: Author, 1991, p.153.

[2] While surveying the Duar region on the Asom-Bhutan border, referring to the Pagladia River. 'Correspondence Regarding Captain Rutherford's Survey of the Northern Frontier of Assam, 1829', File No.417, Assam Commissioner's (A.C.) Papers, ASA.

[3] K. B. Nandi, Sub-deputy Collector, Lakhimpur, to the Commissioner, Assam Valley Division, 13 September 1927, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Rev.-B, September 1928, Nos.1184-1246, ASA.

fields of rice, the staple crop grown in the Valley. In contrast, there were also floods that destroyed the peasant's means of production, crops, cattle and lands, and occasionally resulting in human deaths. These apparently contradictory aspects of the floods make it an interesting subject of study. Both aspects, however, were intricately related to the lives of the people in the Brahmaputra Valley, and as a predominantly agrarian society, its varied and changing relations to floods, mediated to some extent by the state, also shaped the society's relation with the rivers.

Cultivation was done according to opportunities and constraints offered by the land. The agriculture cycle in the Valley was attuned to the seasons. It was entirely dependent on rainfall for watering the fields, except in the submontane tracts where *dong* irrigation was extensively practiced. The output of the transplant rice, the staple crop, and important cash-crops such as mustard was crucially dependent on the timing and amount of rainfall. Rain had to be "well distributed and well suited to the wants of the agriculturalists" for a good crop.[4] The absence or inadequacy of rainfall at the time of sowing created conditions of drought and severe constraints to paddy cultivation, resulting in low production or even crop failure. Loss of a season of cultivation or damage of standing crops was not a rare occurrence in parts of the Brahmaputra Valley, as can be seen in the annual land revenue reports that the Colonial state produced regularly after Asom was constituted as a separate province in 1874.

The region usually received nearly half of its total annual rainfall during the two months of July and August, the months of Monsoon.[5] While a less-than-sufficient rainfall at times caused drought conditions affecting the crops and the fate of the poor peasants particularly, an abnormally excessive rainfall became the reason for inundation of the fields. Colonial documents regularly reported "local floods" causing revenue losses. For instance, in his report for the year 1881-82 the Commissioner of the Assam Valley Districts drew attention of the higher officials

[4] *Report on the Land Revenue Administration in Assam*, 1881-82, Shillong: Assam Secretariat Press, 1883.
[5] *Report on the Land Revenue Administration in Assam*, 1879-80, Shillong: Assam Secretariat Press, 1881.

to the unusually high rainfall of September 1881, and pointed out how seriously the unusual rains of that month had affected the land revenue of the year, particularly in the district of Nowgong and in Barpeta sub-division of Kamrup district. Both showed a decrease in land revenue for the first time since 1874. The main cause of this decrease was said to be the inability of the cultivators to carry out cropping in the *chapari* lands. These were referred to as 'mahals' or estates, were extensive low-lying tracts which bordered on, and were annually flooded by the Brahmaputra. If these lands were flooded or there was extensive rain in the month of September, the land was too wet to allow cropping in time, and as a result, a good deal of the land was not taken up for cultivation.

There were three main crops of paddy – *ahu*, *bao* and *sali*. *Ahu* was an early-ripening variety that was grown in comparatively higher areas.[6] It was broadcast in March-May and reaped in June-August. Except in certain areas where *ahu* was the main crop, this crop was generally grown on a part of the *sali* land to tide over the lean period from July to December. In most areas the *ahu* land was again ploughed for transplantation of *sali* seedlings. *Ahu* was sometimes sown with *bao* in low-lying areas which was reaped in July-August unless it was destroyed by floods while the *bao* still remained in the field.

Bao was a broadcast variety of deep-water paddy which was generally grown in low-lying areas. It was sown in April-May and was most suitable for areas where there water remained on the *pathars* or fields throughout. It was reaped in November-January. This variety could stand a great depth of water, provided the water level rose gradually if the plants were not completely submerged. The *bao* did not survive in areas where the water level fluctuated greatly.

The most important paddy crop in Asom was *sali*, which was of a transplanted variety. Seedlings were grown in May-July and transplanted during July-September in comparative safety from floods and on lands higher than the riverine tract. If flood occurred early in the agrarian season – in June or early

[6] *Note on Assam Floods of 1954*, Shillong: Assam Government Press, 1954. The following discussion on the rice crops and their cropping season is based on this document.

part of July – but did not recur in the later months, it generally destroyed the *ahu* crops and the *sali* seedlings. Yet this generally permitted some time to grow the *sali* seedlings once again for transplanting in August-September. If the floods came between mid-July and mid-August, much of the *ahu* crop was in general already gathered. Such a flood however could destroy the *sali* seedlings and left no time for growing them again. During such a flood the *bao* crop might suffer in various degrees. If the floods came very late in September and at times in October, it generally did the greatest damage to the standing *sali* crops.

The annual revenue report of the province for the year 1879-80 recorded that in parts of Nowgong, "the crops suffered a little from drought in the beginning of the year."[7] It was reported from Sibsagar that in 1881 "The late rice crop [was] on the whole light, owing to the dry weather in May and the want of rain in September and October."[8] In Kamrup, Sibsagar and Lakhimpur districts, "some damage was done to the *aus* crop by local inundation" due to rains in the year 1879. The rains also affected the riverine tracts, as in the month of September 1881 when district officers complained that it had "materially affected the *daryabadi* cultivation, and therefore the revenue demand of their districts for the past year."[9] Commenting on the harvest of the same year,

> The district officers in the Assam valley all dwell on the heaviness of the September rains, and the effect they produced in retarding the sowing of the mustard crop and in diminishing the area sown. Following on this came a dry November and December, which further lessened the outturn. The effect of this is shown in the trade returns, according to which the export of oil seeds fell off by 166,000 maunds, or about 20 percent.[10]

In his report for the year 1881-82 the Commissioner of the Assam Valley Districts drew attention of the higher officials to the abnormal rainfall of

[7] ibid.
[8] *Report on the Land Revenue Administration in Assam*, 1880-81, Shillong: Assam Secretariat Press, 1882.
[9] *Report on the Land Revenue Administration in Assam*, 1881-82, Shillong: Assam Secretariat Press, 1883.
[10] ibid.

September 1881, and pointed out how seriously the unusual rains of that month affected the land revenue of the year, particularly in the district of Nowgong and sub-division of Barpeta in the district of Kamrup. Both Nowgong and Kamrup districts showed a decrease in land revenue in that year for the first time since 1874. The main cause of this decrease was said to be the inability of the cultivators to take up land for mustard in the *chapori* mahals. These mahals were extensive low-lying tracts in Nowgong and Barpeta which bordered on, and were annually flooded by the Brahmaputra. If these lands were inundated or there was extensive rain in the month of September, the land was too wet to allow of the cultivators sowing their mustard in proper season. The result was that a good deal of the land was not taken up for cultivation. This affected the harvest of supplementary crops such as mustard, one of the principal articles of export of the valley, and consequently the land revenue of the year for the state.[11]

The fluctuations in the amount of rainfall could occur in the Valley within a short span of time. It made the agricultural cycle quite unpredictable, resulting in uncertain and fluctuating region-wise productivity, if not for the Valley as a whole. The requirement of water was also different for the three prominent agrarian zones of the Valley: the riverine tract, the submontane tract and the flood-immune rice-lands in between. Rice cultivation in the tract of permanent agriculture, for instance, where the *sali* variety was extensively cultivated, was almost totally dependent on the monsoon for water, while in the submontane tract it was supplemented by irrigation from the hill-streams. The vulnerability of the peasants in the Brahmaputra Valley to the elements of Nature was observable, particularly for those classes of peasants who had small or marginal landholdings, and without other means of production to supplement cultivation.

The import of the climatic conditions to the copping pattern was evident to the colonial government. To monitor the distribution of rainfall in the Valley, an annual revenue report was published separately for the province by the agricultural department from 1874, a series which registers a very sketchy but

[11] ibid.

continuous account of the revenue losses due to 'calamities'. Among these calamities, excessive rainfall and floods find regular mention. "Of the 121 Rainfall Registrars in the province (1) 52 who are mostly planters… (2) 3 receive special remuneration from the Meteorological Department of the Government of India for [the] work done for the Director General of Observatories, and, (3) the others do the work gratis."[12] In the six Brahmaputra valley districts of Goalpara, Kamrup, Darrang, Nowgong, Sibsagar and Lakhimpur, 37 'official' and 39 'non-official' Rainfall Registrars were functioning by 1914, who reported rainfall statistics every month to the agricultural department.[13] This was one of the first measures the colonial government took to regularly collect meteorological data that was considered necessary for estimating the annual crop outturn.

The overwhelming majority of the people of the Valley depended on agriculture and related economic activities for their livelihood. At the beginning of the twentieth century, after more than hundred years of the dissolution of the obligatory labour service system in the whole of the Valley, with 89 percent of the total population engaged in this sector.[14] Floods resulting in the damage or failure of crops were frequent, though there was nothing unusual to experience inundations every year. In fact, such normal and regular inundation was regarded by the cultivators as beneficial to the fertility of the land.[15] As has been observed of the effect of floods in case of the Jaintia pargannahs, "Though the Jaintia pargannahs are particularly liable to floods, and though it takes the people some time to recover from their effect, there is no doubt that the soil is enriched by the silt brought by the floods and produces excellent crops."[16]

[12] J. McSwiney, Director, Department of Land Records and Agriculture, Assam to the Second Secretary to the Chief Commissioner of Assam, No.Xa5-III, Shillong 6 January 1914, Assam Secretariat Proceedings, Agricultural-A, March 1914, ASA.

[13] *Report on the Land Revenue Administration in Assam*, 1882-83, Shillong: Assam Secretariat Press, 1883.

[14] "Assam is pre-eminently an agricultural province, no less than 89 per cent of the whole population being supported by some form of agricultural or pastoral pursuit, and more than three-fourths were returned at the last census [1921] as ordinary cultivators.", *Report of the Banking Enquiry Committee*, 1929, p.7.

[15] *Report on the Land Revenue Administration in Assam*, 1881-1882, Shillong: Assam Secretariat Press, 1882.

[16] *Report of the Banking Enquiry Committee*, Shillong: Assam Government Press, 1930, p.14.

It was reported in 1879 that "some damage was done to the *aus* crop by local inundation, but the loss was compensated by a bumper sali harvest"[17] in Goalpara district. Likewise in Darrang, "In spite of slight floods in the early part of the rainy season, the harvest was, as in the previous year, an excellent one."[18] Similarly, "In Sibsagar and Lakhimpur the harvest was generally good. Some damage was done to the crops by local inundation."[19] For that year, "In the Assam Valley districts the rise of Brahmaputra river and some of its effluents occasioned temporary floods, *which were of ordinary nature*."[20] The following year too, "there were no floods during the year, except such as are always caused by the usual temporary rise of the Brahmaputra and its effluents."[21] Similarly, it was noted that in 1881-82 floods caused by the rise of the Brahmaputra and its tributaries were generally moderate. During such floods, "damage is of course done to the crops on land already under cultivation, but with the exception of the floods caused by the heavy rain in September last", the areas brought under cultivation in that year in the Brahmaputra Valley districts was not reported by district officer to have been affected by floods.[22] Such annual floods considered to be 'normal' were interspersed by occasional heavy floods which had destructive effects for the people and their production. Floods became destructive to the crops on certain specific conditions. The floods "damage crops in two ways, i.e.," it was noted "both by the rapidity of the current which actually carries away the plants, and by the depth of the water, owing to which the fields are submerged, and so die."[23]

Even till the beginning of the twentieth century, annual floods inundating parts of the Brahmaputra Valley were held to be of 'ordinary' and 'local' nature in

[17] *Report on the Land Revenue Administration in Assam*, 1879-80, Shillong: Assam Secretariat Press, 1880.
[18] ibid.
[19] ibid.
[20] ibid. Emphasis added.
[21] *Report on the Land Revenue Administration in Assam*, 1880-81, Shillong: Assam Secretariat Press, 1881.
[22] *Report on the Land Revenue Administration in Assam*, 1881-1882, Shillong: Assam Secretariat Press, 1882.
[23] F. C. Henniker, Officiating Director, Department of Land Records and Agriculture, Assam to Secretary to the Chief Commissioner of Assam, No.2374, Shillong 18 May, 1898, Assam Secretariat Proceedings, May 1898, ASA.

official discourse, not which caused widespread destruction and loss, an opinion to be radically altered within the course of a few decades. There were many reasons for this 'normality' of floods in the peasant's life. As in the case of Darrang district in western Asom, "The Brahmaputra and many of its tributaries occasionally overflow their banks, *but the area subject to inundation is well known, and the villagers do not attempt to cultivate anything more than summer rice or cold weather crops in these flooded tracts*."[24] The rivers were also prone to change their course very frequently, making it dangerous to inhabit or cultivate very near to their banks, something which was generally avoided by the people.

Reading the colonial records, the question of floods and the loss to agriculture caused by floods to crops and property seem to have acquired gradual importance from the first two decades of the twentieth century after a series of high floods in the Valley. It appears from the records that ordinary and expected annual floods turned not only more frequent but also more destructive. If the colonial records are to be believed, larger areas came to be referred to as flood-prone, and started to be classified in the land revenue records as such. Increasing number of people also seemed to have become vulnerable to the destruction of floods. One explanation that was put forward at that time was the great earthquake of 1897, which greatly changed the physical geography of the region, and particularly its river system. But there were other explanations, not all of which could be ascribed to the works of Nature. They were induced by human actions, accentuating and amplifying the destruction caused by forces of Nature.

Floods and the Colonial State: Nineteenth Century Measures

As has been noted earlier, the floodplains of the Brahmaputra Valley, particularly in eastern Asom, were converted into permanent settlements during the medieval times through the building up of a network of interconnected embankments, which not only worked as high roads that could be traversed at all seasons, but also as protective works safeguarding the urban centres, villages

[24] B. C. Allen, *Assam District Gazetteers*, Vol. V, Darrang, Allahabad: Pioneer Press, 1905, emphasis added.

and the fields.[25] The colonial administration which took over political power from the Ahom state was aware of the grand works undertaken by its predecessor in the form of highways and embankments rising above the floodplains. Much of it however was now in a dilapidated state as the old modes of organisation of social labour necessary for the construction and maintenance of these large works had effectively been broken down by prolonged civil war followed by the years of Burmese occupation, severely curtailing their effectiveness. As the Collector of Darrang observed in 1835, a decade after the British occupied the country,

> The only old public works of this division worthy of notice are the fine old *bund* roads, most of which I am now reporting. The principal *bund* road in Assam is called the Gohain Kamli Ali, which was made about 200 years ago; it is said to have extended from the Monas river (the boundary of Bengal) to Suddeah (Sadiya), the most eastern post in Upper Assam running parallel with the Bhutan and Dufflah mountains, through Kamrup and Darrang, Chooteeah, Charduar, Nowduar, Chahduar and Susee, and after the subjugation of the country by the Assamese, it was considered as fixed on the boundary between Assam and Bhutan… It has never been repaired since it was made, and being constructed entirely of earth is now consequently scarcely discernible, being in many parts washed away and overgrown with impenetrable forest jungle.

A colonial official in charge of Public Education in Bengal who visited the Valley in 1857, observed that there existed "several splendid lines of road in Assam raised above inundation level" which only needed a few bridges to make usable transport by carts and carriages. However, he raised doubts about the prudence and desirability of spending large amounts of government money on construction and maintenance of roads in a country where according to him, "at present carts and even beasts of burden are almost unknown", and where "canoes and man's backs are the sole means for conveying produce and goods

[25] Dr. A. Barua, 'Geographical Background and the Development of Communication in Medieval Assam', Chow Nagen Hazarika ed., *Tichow Fa: Souvenir of the Capital Me-Dam-Me-Fee*, Dispur, Guwahati: Capital Me-Dam-Me-Fee Celebration Committee, 1997, Krishnakanta Handique Library (KKHL), Gauhati University.

from place to place."[26] Similarly, it was observed that a large portion of the old embankment on the Buri Dihing River in Sibsagar district still existed, and was

> a fine massive Bund, which all the inhabitants on the west side of the Booree Dehing concur in saying was a most useful work and might be again readily restored. The country now run to waste in consequence of the inundations is exceedingly extensive and the jungle is yearly increasing, partly from the unhealthiness of the neighbourhood of the flooded lands and partly from the rapid increase in wild animals. A large portion of the land that would be covered by the embankment is forest land once village grounds…the remainder has been rice-plains… most of it would be again reclaimed if protected from the present heavy inundations."[27] There were breaches to the embankments were "caused by the river cutting away the bank from under them."[28]

In 1859 a small amount of Rs.2659 was sanctioned for repairing 21 kilometers of this old embankment. These *bunds* were raised about three to four feet above the ground, and nearly eighteen feet broad. Matthie reported that till 1835, no effort at repairing the damaged embankments had been undertaken so far, but having obtained the sanction of government to spend a small amount for this purpose, the officer expected to carry it out in the coming winter season. He argued that it was scarcely reasonable to expect the villages with "such a scanty population" would on their own repair such extensive works without "a little aid" and perhaps small remunerations. "A little good-natured expostulation backed by an occasional present of salt, rice and sweetmeats" distributed instantly at the site of work was found to be quite a sufficient encouragement for them to render labour, he added. The objective behind repairing "the old *bund* roads", which he presently undertook, was to open a line of land communication between the military posts of Bishwanath in Asom and Poorah in Cachar.[29] Colonial records also mention the repair of the embankment on the 'Kikhare Jan' on the south

[26] Secretary to the Government of Bengal to the Commissioner of Assam, Darjeeling 24 April 1857, Series I: Foreign Department, for 1857, Vol.43, ASA.
[27] Francis Jenkins, Revenue Commissioner's Office, Assam to E. J. Trevor, Secretary to the Board of Revenue, Lower Provinces, No.44, 12 July 1859, January-December 1859, Series V, ASA.
[28] ibid.
[29] Lt. James Matthie, Principal Assistant to the Governor General's Agent, Collector and Magistrate of Zilla Darrang, to Captain Francis Jenkins, Commissioner of Assam, 15 February 1835, File No.298, Bengal Government (B.G.) Papers, ASA.

bank of the Jamuna River in Nowgong district, first undertaken by Captain Rutherford in 1835 with an expense of Rs.300 and subsequently by Captain Brodie in 1837, where the peasant labourers were remunerated with "presence of rice".[30]

While Matthie was engaged in the reconstruction of embankments in Darrang, Lieutenant Brodie and Captain Vetch were doing the same in Sibsagar district. Francis Jenkins, the Commissioner of Assam accompanied by Brodie inspected the great embanked-road called the Borbarua Ali in 1840 which ran "in line almost perfectly straight from Seebpore to Dibrooghur", two important administrative towns of eastern Asom.[31] The *ali* was found to be a high and solid mound of sufficient breadth at top for allowing carriages. The repair of a section covering three miles had already been completed, with the principal objective of mending the breaches to shut out the inundation caused by the Disang and Darika Rivers, which appeared to have laid waste a vast tract of "fine nice country" east and north of Sibsagar town. The Commissioner considered it of great importance to have the whole road opened as quickly as possible, and tried to persuade the higher colonial authorities in Fort William to allow funds for the repairs by arguing that the reinforcement of troops to reach Dibrugarh from Sibsagar took six to eight days with the present means of water communication on the Brahmaputra, even if there was an emergency. Once the road was opened, the distance was expected to be of only two marches, or one forced-march in exigency. Instructions were subsequently issued to Brodie to "lay on a gang upon the Bur Burwah's allee immediately, and Capt. Vetch also to open the road on his side without delay."[32] In the ensuing cold season, reparation works of 6.75 miles of the Borbaruah Ali was completed with an expense of Rs.2000, while another eleven miles were still left which the district officers expected to complete in the

[30] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.120, 30 May 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.

[31] Captain H. Vetch, Political Agent in Upper Assam to Francis Jenkins, Agent to the Governor General, North East Frontier, No.36, Dibrooghur, 11 January 1840, January-May 1840, Series VIII, ASA.

[32] Francis Jenkins, Agent to the Governor General and Commissioner of Assam to Secretary to the Government of India in Political Department, No.23, 28 January 1840, Vol.2 of 1840, Series II, ASA.

coming cold season. Brodie reported that the works already completed had proved to make communication much more convenient for the inhabitants of adjacent regions. Fifteen miles of the "great high road" between Sibsagar and Jaipur was also restored at an outlay of Rs.6308, leaving another 41.5 miles still to be cleared and repaired. For the state, "This road seeming to be of great political importance, as affording the means of moving troops and of controlling the Nagas, as well as highly valuable as one of the roads of internal communication on a line, by which much traffic in salt & C. is conveyed."[33]

The question of firmly laying the foundations of the Raj was of high priority to the colonial state in the first half of the nineteenth century Brahmaputra Valley, for which the ability to quickly move troops was of crucial importance. This was why the restoration of these *alis* were taken up extensively during the first half of nineteenth century. These roads, when restored to their functional state, were expected to give far more advantage in the speed and capability of troop movement and maneuver which was not possible by using the river-route. This was of prime concern for the British, who were yet to firmly establish its rule in its North Eastern Frontier, since Jenkins and his men still had to guard against "desultory irruptions of the border tribes and insidious counsel and to our own discontented chiefs", even when the possibility of direct Burmese assault was remote.[34] Restoration of these embanked roads for its singular merit and purpose of flood-protection in this period was restricted by the perceived high costs and unpredictable outcomes, which the government of Bengal was not keen to grant. This was in spite of the continued efforts by Jenkins, the Chief Commissioner and the highest provincial administrator in Asom, who showed a strong belief in the capacity of embankments to bring in 'improvement' of the land.

[33] Francis Jenkins, Agent to the Governor General, North East Frontier to F. I. Halliday, Secretary to the Government of Bengal in the Judicial Department, Fort William, No.147, 28 August 1840, Series II, Vol.9 of 1840, ASA.

[34] Francis Jenkins, Agent to the Governor General, North East Frontier to I. H. Maddock, Secretary to the Government of Bengal in the Political Department, Fort William, No.85, 7 May 1840, Series II, Vol.9 of 1840, ASA.

Attention was paid to the floods of the Bhogdoi River, which was originally an artificially dug channel out of the Disoi River, and was completed in the first decade of the nineteenth century under Ahom rule. The purpose at that time was to relieve the shallow bed of Disoi obstructed with sands. Both these streams were repeatedly embanked since 1839 by colonial officers, but at times the flood waters were so strong and the soil so sandy that they were repeatedly breached and the country inundated. The soil of the region was not found to be suitable enough for constructing strong embankments, and a permanent remedy for the "mischiefs" caused by their constant failure seemed impossible. Captain Reed's plan of cutting another new channel in 1849-50 too proved to be of little use, much like all other remedies yet attempted by the colonial government.[35]

Minor repairs to the old embankments on the rivers Disoi and Bhogdoi were also carried out in 1840, and the work had the approval of the highest colonial authorities.[36] Requesting the government to sanction of Rs.2000 each for repairs of old *bunds* along the "Jazee, Deko and Disang", Captain Brodie argued that "The land on the bank of these Rivers is the richest in Assam [but] their bunds are in the worst state possible and the good that their restoration will effect is incalculable. There are but few settlers on the banks of the Booree Dehing – but is desirable on every account that inducements should be held out to them."[37] A planned but cautious effort was suggested for the strengthening and repairing of existing embankments requiring immediate restoration. Government officials engaged in reparation of embankments were instructed to provide an "approximate estimate of the extent of land now cultivated and of what may be reclaimed, dependent on each Bund" along with the estimated cost and the

[35] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.70, 4 April 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.

[36] Francis Jenkins, Agent to the Governor General in Council, North East Frontier and the Commissioner of Assam to H. T. Prinsep, Secretary to the Government of India in the Political Department, Fort William, No.36, 16 March 1840, 108-109 P.C., Foreign 1840-49, NAI.

[37] Captain T. Brodie, Officiating Magistrate, No.25, Seebsagur 7 February 1940, 108-109 P.C., Foreign 1840-49, NAI.

design of the embankments to be repaired by the state, [38] Almost a decade latter in 1852, it was observed that

> The Bunds in question protect a very large extent of cultivation and they seem to be indispensably necessary, for the Bhogdoe and Desssae are hill streams, with very shallow beds, liable to be flooded instantaneously, with heavy fall of rains in the adjoining naga hills and in this state their currents are impetuous and bears with them only pores and destructive of all cultivation in their course. Their retention beg the absolutely requisite, the repairs of the Bunds ought to be periodically provided for, and by early and regular attention to them economy will be… essentially achieved.[39]

This work was deemed important as "there is a very extensive cultivation of a large population to protect, and any neglect of the works would be attended with much loss and suffering."[40] However, contrary to what the colonial authorities in Bengal expected, no guarantee of success from the reparation of the embankments on the Bhogdoi River was promised by the local officials, as the difficulties to be surmounted were estimated to be very great. The hills from which the river originated being just about twelve miles off, the currents of the river in spate could be destructive, spilling out of its bed "and the whole surface of the country close upon the river."[41]

Apart from Desoi and Bhogdoi, repair of embankments on Disang, Dihing, Besi and Janji rivers were carried out in Sibsagar district as these works were considered to be in requiring urgent restoration for protecting cultivation on their floodplains. Enquiries were made in 1840 to ascertain the number of rivers "whose Bunds it will eventually be necessary to repair and their probable extent

[38] Francis Jenkins, Agent to the Governor General to Lt. Brodie, Officiating Magistrate of Seebpore, No.269, 20 April 1840, January-May 1840, Series VIII, ASA.
[39] Francis Jenkins, Agent to the Governor General to the Board of Revenue, Lower Provinces, Fort William, No.71, 17 March 1852, January-June 1852, Series V, ASA.
[40] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.183, 6 September 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.
[41] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.183, 6 September 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.

in miles."[42] When the same official visited Sibsagar almost a decade later, he observed that the appearance of the station of Sibsagar had undergone much improvement in the interim. The heavy forests around the station were 'reclaimed' and brought under cultivation after the construction of the *bund* along the Darika River, a work "which has been of the greatest service." There was much enthusiasm among the district officials that the land still lying 'waste' in the immediate vicinity of the station would be taken up that very season, since all land that had been taken up for fresh cultivation had turned into excellent rice fields. Jenkins was particularly pleased with the developments around the town of Jorhat, which after the restoration of the *bunds* on the Bhogdoi and Disoi had now been brought under "full cultivation", with the result that the agrarian frontier had been extended towards the Brahmaputra far beyond what was a few years ago. He wrote emphatically, "The immediate visits of Jorehaut which I remember as most desolated and deserted from the effects of the inundations of the Dessoe and Bhogdoe, has now from the richness of the cultivation round and the great extension of the village Barries, all the appearance of the best parts of Kamroop and Nowgong and will no doubt yearly improve, if the embankments which Captain Holroyd has so judiciously and carefully constructed are not neglected."[43]

The state in the nineteenth century Asom was willing to spend on embankments when it was occasioned by the loss it caused, or had the potential to cause a loss, to land revenue. It was more profitable for the colonial state to invest small sums in maintaining some of the existing embankments in good order, or even constructing a few new ones. Neglect of such works resulted in losses, as was the case in Darrang in 1850-51, where owing to a succession of bad seasons coupled with extensive inundations of large rivers and the hill-streams led to extensive failures of embankments, rendering quite a large area of land uncultivable for many years to come. It was felt that if the smaller embankments involving small amounts of expenditure to the government were to be carried out under the

[42] ibid.

[43] Francis Jenkins, Commissioner of Assam, to E. J. Bivar, Secretary to the Board of Revenue for Lower Provinces, Fort William, Letter No.181, 2 February 1859, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1859, ASA, emphasis added.

district collectors, it was argued that "to the poor ryots the saving would be very great indeed in many places and to the government the expenses would be covered entirely by increased cultivation."[44]

As it appears from official records, the colonial state sanctioned funds for only those flood-protection works that it considered to be of exceptional need, that were urgently required and did not involve large outlays. It was not uncommon for proposals of constructing new embankments from district officials to be turned down by officials higher up the colonial bureaucracy. The old embankments on the Nonoi River in Darrang were breached in four stretches in the floods of 1854, and both the Collector and the Deputy Collector of the district recommended that it was necessary to repair two of the four breaches, "the second being in good order and the first no longer required".[45] Forwarding for approval of a work estimate of Rs.1000 from the government exchequer, the district officer Martin however maintained that he was "entirely opposed to the construction of any embankments" for the cost involved was large, having presently suggesting the works since it was only repair work and not a proposal for new embankments. The officer felt that the "embankments are particularly required now, in the state in which we find the river and existing embankments"[46] When it did seem unavoidable, the colonial state applied methods of cutting costs, which even by its own estimates, were a throw-back to the past days of its predecessor Ahom state.

Calling upon the Raiyats to Work

For the construction of new embankments, the government preferred that the district officers encouraged the *raiyats* with small amounts required, so that there was no or very little expense on hiring labourers. Such an opinion, that the *raiyats* should be persuaded by the state to voluntarily take up construction by

[44] ibid.
[45] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.28, 6 February1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.
[46] ibid.

themselves and repair of flood protection works instead of looking up to the government, was a constant refrain expressed by the colonial administration. However, there was ambiguity about the manner in which such a mechanism could be put in place, since obligatory and compulsory impressment of *raiyats* was considered to be a step backwards, of reverting to the Ahom regime, which the colonial government could ill-afford to openly pursue after its criticism of the earlier rulers as despotic as opposed to its own 'enlightened' rule. Nevertheless, there were instances of resorting to the 'old ways' by the colonial government of even till 1850s in getting the embankments repaired by the *raiyats* without remuneration.

Responding to Bengal government's enquiry into "all the embanked rivers in the province", the district collectors wrote back, informing about these embankments under their jurisdiction. The collector of Kamrup district reported that "there are no bunds in his district except the natural bunds created to the banks of the rivers by the setting up of the forelands from deposits – the breaches in which the collector says he has generally succeeded in *getting the ryots to repair themselves*."[47] The government was informed that between 1840 and 1854 an aggregate of Rs.10,749 was spent on repairs and construction of river embankments in the eastern district of Sibsagar. Similarly in Darrang district too, such works had been 'successfully' executed, though for their labour "the ryots to this day have never been remunerated."[48]

Arranging labour was a cause of concern for the colonial state in its early years for large-scale construction works initiated by it. Relatively high rates were paid to induce native inhabitants to perform day labour, and even then the response was not very encouraging. The state showed interest in hiring 'Cacharee' labourers for construction of roads, repair of embankments etc., the only ones who were ready for such work, while the Mataks were considered to be

[47] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.200, 6 October 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA, emphasis added.
[48] ibid.

refractory and hence not preferable for employment.[49] The contradictions between the ideals proclaimed by the State and the practices in reality were visible in the observations made by the Board of Revenue of the Government of India, when it said,

> It is obvious that the Commissioner follows the custom of the latter times of the Assam Government, and causes the villagers to repair the Bunds gratuitously, such works being considered conductive to their benefit and that he does not consider the state under any obligation to bear a portion of the expense. From the meager report supplied, the Board are unable to gather the grounds of the Commissioner's conclusions either for the necessity of the Bunds or the non-liability of the Government. The latter however in a country situated like Assam, would seem to depend upon the former. If the embankments are necessary to the protection of the cultivated lands, and the stability of the Revenue, the State, which in Assam is to the cultivators as the zemindar in Bengal, should bear a portion, and that the most considerable of the charge incurred. If they are not necessary, or of doubtful or partial utility, the coercion apparently employed or advocated by the Commissioner towards the villages in regard to repairs, can by no means be justified.[50]

Therefore a voluntary contribution of resources from the peasants was considered to be the most preferable option, with some encouragement and aid from the state when necessary. Jenkins observed that

> such an arrangement would be satisfactory if it could be enforced but the collectors are not aware how this could be effected. There can scarcely occur any breach of an embankment without its effecting a multitude of cultivators and sometimes throughout several mauzas. I believe the ryots would generally willingly give the necessary labour gratuitously but what they require is that all

[49] "For the construction of the roads I would recommend his engaging from this at least one hundred Cacharees who will be willing to engage for one year at 4 Rupees a month, they are willing, strong men and they will render the engineer independent in great measure of the refractory Muttocks. I should be happy to assist the engineer in hiring the Cacharees and should expect no trouble in raising a much larger number, if allowed to give liberal salaries to their offenders and overseers." F. Jenkins, Commissioner of Assam, to Captain Debude, Officiating Secretary to Military Board, Fort William, No.466, 2 July 1840, Series XI, Vol.6, May-October 1840, ASA.

[50] Proceedings of the Board of Revenue, No.20/21, 28 March 1851, Home, Revenue Consultation, Index to the Land Revenue Records, NAI.

> persons effected should be compelled to contribute either personal labour or substitutes as an equivalent payment but I do not know how any such forced labour could be legally insisted on.[51]

The considerations for such a proposal were financial. It was only after much hesitation that Captain Holroyd, the collector of Sibsagar, was permitted to spend Rs.1500, who after examining the dilapidated condition of the old *bunds* along the Disang River suggested that the breaches needed to be urgently repaired before the rains set in.[52] The reason for such stringency was the orders of the Board of Revenue and the Bengal government, "which forbids such works to be undertaken."[53] Neither was it considered that the state and its officials were responsible for keeping up the embankments in good order. They were of a magnitude that did not come within the estimates of the district officials, and therefore some of the *bunds* were allowed to remain in their existing state of dilapidation.[54]

The work done by the district officer of Nowgong, Captain Butler, was much appreciated for generally "prevailing" over the *mauzadars* and *raiyats* who requested government's intervention in repairing or building embankments. In Nowgong, the officer argued, "the ryots find it more advantageous to take up fresh lands" when their efforts to embank the numerous *jans* or rivulets did not yield desired results.[55] Captain Butler was also one with the opinion of the Board of Revenue in Bengal government "on the doubtful good of bunds and the positive benefit of inundations." Jenkins testified, not without expressing his disapproval to his junior officer's opinion, that "I have long known that Captain Butler is generally averse to the construction of any embankments, but it must be evident to him as to everyone that great good may be the effect of a partial bund

[51] Francis Jenkins, Commissioner of Assam, to the Board of Revenue, Lower Provinces, Fort William, Letter No.1, 3 January 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, ASA.
[52] ibid.
[53] ibid.
[54] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.38, 21 February 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.
[55] ibid.

well executed and in proper time."[56] But embankments were desirable as long as it did not strain the government treasury and cut into its revenue. Both could be ensured only when the peasants could be mobilised and persuaded to take up such works. Reprimanding Butler for not taking up the task of embanking the rivulets of his district, the commissioner wrote,

> In the case in question I have no doubt of the utility of stopping the mouths of the jans, and that the work to be done effectually should have been already undertaken and been executed under the supervision and encouragement of the collector. *All the mouzadars affected being called upon to bring their quotas of ryots and the gangs receiving from the collector small presents for their voluntary labour rather than a payment for daily labour* (in salt and money equal to a certain quantity of salt is as usual provincial mode of remunerating ryots for such works).[57]

To bolster his argument, Jenkins cited the examples of work undertaken in this manner. He pointed out that Captains Matthie and Bogle executed works of considerable magnitude through such an arrangement by inducing the peasants, and "the labour was given cheerfully when under the collector's personal superintendence."[58] As if to put the final nail on Butler's argument that peasants could migrate when faced with destructive inundations, Jenkins asserted, "It is easy to say that the ryots can take up other lands, but in a case of this kind they would have to give up their patrimonial roopeet (Salee) lands immediately in the vicinity of their villages to some other lands at a distance and those lands would generally not be roopeet, all the chapori lands being Boree, or fit only for ouse crops and mustard seed."[59] Moreover, it was not desirable that the peasants be encouraged to abandon their permanently cultivated lands, as these lands so deserted would soon turn into either morasses or be covered with reed jungle, a haven for disease and wild animals.

[56] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.38, 21 February 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.
[57] ibid.
[58] ibid.
[59] ibid.

He strongly disagreed at the same time with Butler's opinion that embankments did nothing to improve the agricultural lands, and that they were in fact detrimental to the fertility of the soil, as embankments tended to prevent the deposition of silt by flood waters. Reporting on the status of embankments in the Kamrup district, collector Captain Butler maintained that "bunds parallel to the courses of rivers to have a decided mischievous tendency", and therefore did not "deem it necessary that any measures connected with the system of bunding should be undertaken in his division."[60] This opinion was met with strong protestation from the Commissioner, who asserted,

> I totally disagree with the collector, any mischief done by bunds arise from the injudicious and insufficient manner in which they are mostly constructed. No division in Assam has suffered so much from the devastations of the rivers as Kamroop, and at this moment 5 or 6 of the best old pergunnahs are now nearly totally destroyed, and the Chowdrees and the ryots of them have suffered very greatly from the losses occasioned by these inundations, but the rivers that have to be dealt with in Kamroop are of no ordinary character consisting of the Burnuddee on the east and Monass on the west and the intermediate hill torrents and the difficulties to be encountered are generally such [that] could not be met by the collectors, but there can be no reasonable doubt that a general system of embankments under engineers experienced in such works commencing from the Doars, could be constructed to save much of the lands now destroyed, and even at small expense large tracts of the back lands to which the inundations only hereby reach might be secured by bunds of the most trifling size, well and properly constructed. Before, however, anything could be done in Kamroop satisfactorily, it would be necessary to have a survey made laying down accurately the lands subject to inundation, and giving some idea of the general levels of the country."[61]

[60] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.200, 6 October 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.
[61] ibid.

Countering the 'anti-embankment' point of view, incidentally shared also by the Fort William authorities, Jenkins strongly advocated the need for embankments for the "improvement" of a region like the Brahmaputra Valley. He argued, citing the example of Nowgong district, that

> to my experience there is nowhere that I have visited such signs of elevations and improvement of lands from unrestrained inundations as they suppose and as regards lands, comprised in that large island between the Kullung and the Burhumpootur of what these form a part. We may strictly say that the inundations have been uninterrupted from time immemorial for the embankments have never been general and only most partial as regards the whole area of the land, but still wherever cultivation is abandoned the Salee fields return to their original state of morass and the ouse fields to reed or grass jungle, and *left to themselves the floods would sweep over the whole country for many ages to come*."[62]

Even when the efficacy and need for building embankments for protecting the permanently cultivated fields from floods was generally accepted by the government, the cost of labour constituted the most important and largest component of the expenditure for taking up the works. As labour in Asom was considered to be expensive before the introduction of the tea garden labourers from central and eastern India, the costs involved appeared to the government in the nineteenth century to be prohibitive and outweighing their benefits. Bengal government was therefore keen to introduce a system of compelling the *raiyats* to execute repairs to the embankments of smaller magnitude in and around their lands, and in the 1850s asked for the opinion of the district officers of the province, and wanted to know about its practicability from the district officers of Asom. Almost all the collectors of the Brahmaputra Valley districts were of the opinion that it was perfectly practicable and desirable to introduce such a system, though as Captain Holroyd of Sibsagar felt that "the success would

[62] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.70, 4 April 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA, emphasis added.

greatly depend on the tact and management of the collector".[63] Captain Butler of Kamrup insisted that rules should be issued empowering the collectors to call out the collective labour, resources and contribution of the peasants to repair or construct bunds and also to keep open the village pathways, while the rich *raiyats* and those who would not render personal service were needed to be compelled to pay up the cost of putting the labour as their substitutes. Referring to the claimed successes in recently engaging the *raiyats* in repairing the bunds on the Nonoi River through voluntary labour, Lieutenant Vincent concluded that no difficulty would be experienced in enlisting the people in goodwill "if it was made compulsory on all to give personal service without discrimination."[64]

There was some apprehension within the official circles that the implementation of such a system and "the repugnance of the ryots to give an uncertain amount of labour" might force them to abandon those districts where *bunds* were required, to migrate to lands where no artificial flood protection was needed. So Captain Dalton advised that the difficulty could be overcome by making it imperative on all *raiyats* irrespective of whether residing in districts where *bunds* were required or not to agree to give certain extent of personal labour each year.[65] Anandaram Phukan of Nowgong, however, questioned the advisability of such a scheme, particularly when "the ryots under the British government have been subjected to increased taxation, the priority of exacting gratuitous labour in executing works of great magnitude may well be doubted."[66] He however held that the obligation on the *raiyats* to maintain their village roads and embankments after being once constructed would help in their better management and render a general good to the country. Phukan therefore suggested the "remuneration of the ryots by remissions in their rents for performing specific works" of flood protection, which in any case was "agreeable to the ancient custom of the country and would not only be less expensive to the

[63] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.95, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA
[64] ibid.
[65] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.95, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA
[66] ibid.

government but would give more satisfaction to the people."[67] What he was arguing for was a course of action that benefitted both the colonial government and its *raiyats*, even though they shared antagonistic class interests and social relations.

The Commissioner of Assam, however, expressed his reservations about the practicability and expediency of implementing such a scheme, though the collectors have all advocated the adoption of some such arrangement as proposed by the Board of Revenue. He pointed out that there were difficulties in determining whether the *raiyats* were required to labour on embankments to protect their own *mauzas* alone or even those in their own which protected the lands in other adjacent *mauzas*, as the breaches in the *bund* of a very small stream might in many places inundate the lands of several of them. In many regions there was the danger that the *raiyats* who would be annually called upon labour of abandoning their fertile but inundated lands to the poorer submontane tracts where they would be exempt from giving personal service. This might require the lowering of assessment rates on all such lands that were embanked in lieu of the labour service rendered by the cultivators compelled to keep the embankments in repair. All cultivators having their rent remitted would readily agree to give personal service for the repairs of their own *bunds*. This, Jenkins felt, would increase the quality and quantity of the lands in the province under cultivation, and the government would surely recover the loss from the decrease of rates from the improved and expanded cultivation. The concern was to carry out this form of work "without oppression to the people" which he suggested could be ensured by the personal supervision of the collectors, and *mauzadars* were to play a key role in mobilising the peasants. He hoped that "the mauzadars being empowered to call for their labour I think justice would be done to the works, for all would see the necessity of keeping their respective embankments in efficient repair and all would be desirous to pay attention to damages in time, to avoid loss to their crops and heavy labour afterwards."[68] But such works must be carried out only by means of persuading, remunerating or in some way

[67] ibid.
[68] ibid.

inviting voluntary involvement of the subject population and not through the enactment of some government rules for extracting obligatory labour. Such a measure would degrade the independent peasant proprietors of Asom and greatly increase their troubles. Jenkins wrote to the Bengal government,

> the Ryots in Assam are now in the enjoyment of a great measure of independence and [that] working for daily hire is very much disliked, a repugnance owing to I presume a feeling common to all people where the population is scanty and land cheap and so distributed that every man can procure for himself as much as he can cultivate. To make a general enactment that all holders of land are to be worked in any way or for any period that a collector may chose to call for their services, *is to degrade them from their own present independent station, will be to add a very high and offensive tax to the present assessment, already sufficiently enhanced*, and will I fear cause the people to look upon the holding of land as far from being the privilege it is now considered.[69]

It was also held that "when the ryots are willing to give their labour for the repair of the Bund these works may be concluded to be valuable at least in their judgment, but when they do not willingly cooperate they may be supposed to be extremely injurious."[70] On the question of whether the "European speculators" would be covered by the purview of such mechanism of work, Jenkins noted that the government could not justifiably exempt the rich and wealthy tea planters from contributing their proportional share of expense as a substitute for their labour on the embankments when the poorest classes were compelled to render their personal service. But exceptions could always be made to safeguard the interest of the inflowing European capital to the tea industry of Asom. The attempt to exact any such terms would deter any European capitalist from undertaking speculations in the province, the Commissioner of Assam argued, adding that it "would be a greater loss to the State than any expense of repairing

[69] ibid.

[70] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.187, 7 September 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.

embankments by hired labour under any system ever", thus recommending that they be left out of the proposed scheme.

However, such a scheme of engaging the *raiyats* for constructing embankments under the guidance of *mauzadars* and other village notables was opposed in 1867 by Jenkins's successor, Henry Hopkinson. Betraying deep contempt for the people's ability to undertake such tasks without expert instructions and engineering plans, he believed that such works must be done under the supervision of technically qualified engineers. While taking note of the report of the Deputy Commissioner of Sibsagar "upon the Bunds of the Dehing and the other rivers in the Seebsagor district", Hopkinson wrote to Bengal government,

> I would reiterate my advice against allowing Deputy Commissioners through their mauzadars to have charge of the construction and repairs of the bunds on the upper Assam rivers. Tradition has it that the old 'Allees' and bridges in Assam were constructed under superintendents imported from India and the probability of the fact is certainly strengthened by the extraordinary ineptitude the present Assamese show for the construction of earthwork when left to themselves. I should say that there are few mauzadars who practically realize that a straight line is the shortest distance between two points, that water will always find its own level, that different soils rest at different slopes, but all require a considerable slope and that a mud bank with perpendicular sides propped up by bamboos and that is not secure, that earth for a raised roadway (particularly through soft ground) should not be taken so close to the road that it will inevitably slip down into its own place, and finally that the strength of an embankment is the strength of its weakest point. I have also a great objection to employ mauzadars in looking after local works wherever it can be availed, as I have learned by disagreeable experience that the difficulty they find in procuring laborers drives them to have recourse to all sorts of shifts and improper practices, and demoralizes the weak and ruins the good among them.[71]

[71] H. Hopkinson, Commissioner of Assam to the Secretary to the Government of Bengal in PWD, No.269, 31 August 1867, Vol.34 of 1867, Series II, ASA.

The proposal though, for the time-being, was met with general approval, and continued to be put into practice during the course of the second half of the nineteenth century. It was also proposed that almost all new embankments now to be constructed were aligned behind the old ones and at a good distance from the banks of the rivers, for in many places the present embankments were so close to the river bank as to be very greatly liable to be carried away by the alterations in the channel of the rivers. Moreover, that repair works of the existing embankments demanded immediate attention after each rainy season every year, but having first to refer to the Fort William authorities for funds and permission in the first place which was the norm till then, delayed the entire process. The local officers could not satisfactorily complete the works as they were held up for a reference to the Board and government for sanction. "In general the necessity of the works is only brought to the collector's notice by a visit to the spot long after the rains have ceased, and if the works are not then immediately commenced on they will be hurriedly carried out at the end of the season or be delayed for another year."[72]

This resulted in the loss of the valuable cold season when such works could be taken up, and the lands were so hastily restored that no proper consolidation of the earthworks or growth of grass on them could take place. The delay of reference to the Presidency as per the calculations of the provincial government was frequently causing losses to the government revenue and suffering to the people, since to hesitate when the work was to be done expediently brought misery to hundreds and involved useless expense to the state. Jenkins recommended that the district collectors should be given the authority to always spend from Rs.200 to 400 on the *bunds* of the rivers during the rise of the floods on the report of the mauzadars of danger to the embankments, without having to

[72] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.95, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA

apply for approval of higher authorities. Such instant attention, he argued, would save much expense to government and valuable crops to the *raiyats*.[73]

The Board of Revenue acceded to the request by the Commissioner for the 'discretionary powers' to expend money for immediate and emergency purposes without prior reference to Fort William, allowing him to "sanction advances to the extent of Rs.500 before giving to government". Jenkins was satisfied with the permission and wrote that "in general this [amount] would be quite sufficient to meet our wants and enable urgent repairs to be effected whilst the ryots were at leisure during the cold season and in time to allow for their consolidation before the rains come in."[74]

In the cold season of 1853-54 the repairs and reconstruction of 34 old embankments in the Nowgong district were completed under the aegis of Anundoram Phukan, a sub-assistant collector. These were said to be "more or less extensive and important, have been taken in hand by the Ryots and that 127,800 men have actually been more or less employed on the works."[75] The Commissioner was at pains to justify the work of a magnitude which was considered huge and far in excess by the standard of the day as per the government's fund outlay for such works. Jenkins noted that given the prohibitory orders of the Bengal government, he was at first not prepared to permit the extensive works which the sub-assistant had undertaken.

> I presume he himself had no intention at first of working on this scale but finding the Ryots anxious to undertake their own bunds everywhere he has encouraged them to the work in the hope the Board would sanction the small remuneration he should have to recommend, and *in any such a general system of embankments the repair of one leads to that of another, not first contemplated for after the*

[73] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.70, 4 April 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.
[74] ibid.
[75] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.120, 30 May 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.

> *neglect of a single one might render obsolete the works of 3 or 4 others belonging to the same network*."[76]

Appreciating the success of the work supervised by his junior officer who successfully induced the Nowgong *raiyats* to put in the required labour, the Commissioner noted that "The extensive scale of the works which the Phokun has been able to commence at this late period of the season, shows I conceive the interest which the Ryots take in these works and it also does credit to them and Phokun and is evidence [of] their readiness to undertake these public works when properly managed and persuaded of the great benefit to be obtained by the hearty cooperation of all hands in such essential labours."[77]

An added concern for the colonial state was that the absence of *bunds* in the region was encouraging the formation of great morasses which supposedly reduced the already scanty population and also carried off valuable cattle. It was hoped that the works could vanquish the epidemics generated by 'miesma' (or miasma) and by the wild beasts that "swarmed" in these great wastes. "Besides, the bunds are the only roads in the country and the breaches in them and the morasses so created cut off communication and as effectively hinder a large and free traffic as if duties were imposed in its transit from village to village."[78] So, to complement the season's works in 1854-55 which were limited to the restoration of "those of most urgent necessity", it was proposed that in the coming season

> a more careful inspection and repair of all the embankments should be undertaken with a view to perfect the organisations now executing and he estimates that a thorough repair might be effected at a probable cost of Rs.9000. this sum in aggregate may seem large but it only amounts to about six per cent of the revenue of the Division for one year, and it is to be hoped that a far less sum would be required in last succeeding year that the embankments are kept effectually in order, and as this money will be spent amongst the Ryots, this

[76] ibid., emphasis added.
[77] ibid.
[78] ibid.

> command of money under the confidence reposed in the embankment will assuredly lead to an extension of cultivation that will amply compensate the state for this expenditure. The lands that could be recovered, it must be borne in mind, are of enormous area…cannot be less than 100,000 acres, and of that quantity a very large portion could now be cultivated with an effective system of bunds.[79]

The Board of Revenue, however, was little interested in granting large amounts of money for such work in general, Jenkins emphatic implorations notwithstanding, "as the utility of the works has been so little admitted by the Board."[80] Though Rs.7100 was sanctioned for restoration of 270 miles of embankments in Nowgong district in 1853-54 at the prevailing average cost of Rs.30 per mile, the government was disinclined to sanction a request for further Rs.8994 for the next season.[81]

Permissions and small funds continued to be granted intermittently to the local authorities for government embankment works in the second half of the nineteenth century, like for the one in Dibrugarh town on the Brahmaputra which was threatened by severe floods in 1867, and when it was considered crucial that some measures needed be taken to prevent it from further damage.[82] In other cases, the peasants of the Valley in particular and the people in general were left to negotiate with the floods by themselves. As per the official interpretation, this was a 'voluntary' and 'free' contribution of labour by the peasants for their own benefit and hence to be highly appreciated and encouraged. This was in contrast to the obligatory labour requisitioned by the Ahom state which had been abolished by a more benevolent successor state. Such a justification for the unpaid work extracted in this manner brought into sharp relief the way the colonial authorities wanted to present itself: an enlightened regime that allows its subjects to exercise their choice as opposed to

[79] ibid.
[80] Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.213, 23 October 1854, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.
[81] ibid.
[82] H. Hopkinson, Commissioner of Assam to the Secretary to the Government of Bengal, No.250, 1 August 1867, Vol.34 of 1867, Series II, ASA.

its 'oriental' and 'despotic' predecessor which only knew the use of force and coercion to extract the labour of its subjects. But as the evidence from nineteenth century demonstrate, even when the state did not organise the subject population for undertaking such work, the subjects organised themselves by using the customary forms of organisation that had their presence in the medieval times to take up such necessary tasks. Reply to a query by the Government of Bengal on the ways in which "embankments are managed and paid for in Assam", the commissioner replied that

> writing generally, they are not managed and paid for at all – some few of them that have been convenient to use as roads, have been maintained as roads, and repaired as roads, and one or it may be two have been kept up, as in one instance in the Durrung district and perhaps in another in the Seebsagur district, where the reason of an embankment has been *the immediate and direct protection of some large area of paddy cultivation which will not be in existence without it*, but with these rare exceptions the history of the Assam bunds ascends to as remote a past as that of their construction and anyhow *very little has been done for them since our occupation of Assam though they have been the subject of frequent but intermittent correspondence*."[83]

The necessity of restoring the old embankments for agrarian expansion was admitted by the colonial government, and also the fact that what it had done towards ensuring this from the beginning of British rule till the 1860s was very little. The situation was to remain almost unchanged till the first decade of the twentieth century, when the great earthquake of 1897 and its affects on agrarian expansion once again brought back the important question of flood-protection through embankments to the government. This resulted in some major projects of embanking the flooded rivers being taken up in the eastern districts of the Brahmaputra Valley. In the meantime, the decades of 1860 to 1890s saw the continuation of the colonial policy of spending small sums towards the maintenance and restoration of the important embankments. This is exemplified by the following table which details the government expenditure on restoring

[83] Commissioner of Assam to the Secretary to the Government of Bengal, No.1949, September 1872, Vol.34 of 1867, Series II, ASA.

some of the major river embankments in Sibsagar district between 1869 and 1888.

Government Expenditure on Restoration of Embankments in Sibsagar District (1869-1888)[84]

Year	Dikhu *bund*	Desang *bund*	Dehing *bund*	Remarks
	Rs.	Rs.	Rs.	
1869-70	1,000	1,000	1,000	Amount sanctioned
1870-71	1,000	1,000	1,000	Ditto
1871-72	……	1,000	550	Ditto
1872-73	……	……	…..	Record not found
1873-74	……	……	……	
1874-75	……	……	……	
1875-76	1,700	……	……	
	500		……	
1876-77	1,000		……	
	500			
1877-78	1,500	500	…..	
1878-79	1,500	2,600	…..	
1879-80	…..	……	…..	Record not found
1880-81	…..	600	…..	
1881-82	…..	…..	…..	
1882-83	…..	…..	…..	
1883-84	500	500	500	
	500	500		
1884-85	673 spent	100 spent	…..	
1885-86	425	…..	…..	
	300			
1886-87	507 spent	300	…..	
1887-88	200	200	Rs.1,500 but reduced to Rs.500 when the budget was cut down	
	270 spent			

There was no unanimous opinion on the question of the advisability and effectiveness of embankments for flood-protection in the colonial government, and as it appears, not even amongst the peasants themselves. While the difference of opinion between Jenkins and Butler epitomised the former, the proposal for embanking the Disang River in Sibsagar district to protect the villages between Salaguri Ali to Dihingia Khowa Gaon in the first decade of the

[84] 'Note on the *bunds* in the sadr subdivision of the Sibsagar district', by J. Knox-Wight, Deputy Commissioner of Sibsagar, 3 February 1888, No.27, Assam Secretariat Proceedings, Revenue Department, December 1902, ASA.

twentieth century, brings out the differences among the 'beneficiaries' themselves. As a colonial report of 1906 recorded,

> The people affected are divided in opinion as to whether such a bund would be to their advantage or not. A flood which occurs before the transplanting of paddy plants has begun is entirely beneficial, and some consider the benefit greater than the risk of the occasional loss of a crop. Others think that the benefit of being able to plant out early and safely outweighs any benefit to the soil from river silt. *The majority are of opinion that they are better off without a bund*.[85]

The debate over whether floods were beneficial to agriculture or baneful, and whether embankments solved the 'problem' of floods or exacerbated it, was to continue in the coming decades too, with no clear resolution. The question was more often settled by the contingencies, circumstances and preferences of the implementing authorities, as well as to some extent by the prevailing public opinion on it. Nevertheless, the Bengal government felt the need immediately after the floods of 1905-06 to conduct scientific enquiries in order to find a clear and reasonable answer to the question of "the fertilizing effects of river floods under certain conditions and of the results of the river embankments in depriving land of future supplies of silt."[86] The urgency of the question seemed to have been brought up by the "series of damage to crops… by floods in 1905-06 and the difficulty in granting suitable relief."[87] It was observed that villagers of some localities complained to the government authorities that embankments deprived their fields from the silt carried by the rivers during floods. The new embankments that came up on the Dikhow River in 1905 - making a large area of cultivated fields near the Sibsagar town "immune" from floods as claimed by the

[85] "Assessment Report: Eastern Sibsagar Group", Proceedings of the Lieutenant Governor of Bengal, Rev.-A, February 1906, Revenue Department, ASA.
[86] S. G. Hart, Director, Department of Agriculture, Eastern Bengal and Assam, to Secretary to the Eastern Bengal and Assam, 'Enquiry into the Effect of Annual River Floods on Soil and Cultivation in the Assam Valley Districts', Proceedings of the Government of Eastern Bengal and Assam, Revenue Department, Rev.-A, May 1909, ASA.
[87] 'General Notes of a Preliminary Tour of Inspection up in May and June 1908 in regard to the Effect of River Floods on Soil and Cultivation in the Assam Valley Districts', Agricultural Chemist, Eastern Bengal and Assam, 25 October 1908, Proceedings of the Government of Eastern Bengal and Assam, Revenue Department, Rev.-A, May 1909, ASA.

government - was proposed by the Director of the Department of Agricultural as a suitable subject for carrying out the requisite experiments.

The possibility of "training" rivers that changed their course frequently also came up in the debate. The Commissioner of the Assam Valley Districts observed,

> In regard to rivers which change their course, whether it is possible to prevent this by training and embanking the rivers is a question for the inquiry. Whether it is desirable or worth while to do so might with advantage be considered by the Agricultural Department. A good deal of damage has been caused within the last few years changes in the course of rivers – the Bornadi and its tributaries in the west of Mangaldai subdivision. On the other hand, these changes have rendered cultivable land which was uncultivable before, and which has been enriched by deposits of silt received in successive floods. An embankment project intended to protect the land now subject to inundation, since the change of the river's course was opposed on the ground that, by throwing the river back towards its old course, it was again render unculturable the lately reclaimed and fertile land above mentioned.[88]

At the same time, the Commissioner forcefully argued that a profitable distinction could be made between the rates of land revenue assessment between those agricultural lands which received the "enrichment of land by silt" brought down by floods, and those which did not. Moreover, while considering the remission of land revenue due to floods, this distinction could be kept in mind, since the silted lands had a higher probability of yielding better crops after the floods than those which were not silted during the floods.[89] The Director of the Department of Agriculture suggested in 1907 that an agricultural chemist be appointed for Asom for keeping the observations and collecting the relevant data over a period of a few years. Many colonial field-officers and administrators, however, expressed doubts over the fruitfulness of such a study, much less the kind of soli-classifications suggested by the Commissioner of the Assam Valley

[88] 'Note on the effect of annual floods on soil and cultivation in Assam Valley Districts', Commissioner of the Assam Valley Districts, 8 July 1907, Proceedings of the Government of Eastern Bengal and Assam, Revenue Department, Rev.-A, May 1909, ASA.
[89] ibid.

Districts on the basis of siltation by floods. As the Deputy Commissioner of Darrang, referring to the proposed agricultural experiment, remarked, "I doubt if the enquiry is worth making. Cultivation on land liable to flood is in the nature of a gamble, and the people who take the risk involved do so with their eyes open. I doubt if we shall add much to the knowledge of the cultivation on the question."[90]

The skepticism of the above remarks was later supported by the inspection tour of the agricultural chemist deputed to carry out a preliminary field study with regard to the question. In the report filed in October 1908, this official scientist concluded that to try to put a value on the silt deposited on a field by floods which might have also damaged standing crops, was to take a very narrow view of the issue. In the specific and peculiar conditions prevailing in Asom in the first decade of the twentieth century, it did not appear to him a fair proposal that the cultivators be made to pay for naturally deposited silt. In such a case there would be an undesirable burden on the future earnings of the peasant for a presumed benefit which "hardly enters into the cultivator's calculations in this valley."[91] He recommended that the consideration of the value of silt be left out of the assessment of flood-damage due to the near-impossibility of calculating and quantifying the benefits of river silt. The agricultural chemist in his report therefore suggested that "the enquiry should rather tend in the direction of how deposit such silt over the largest possible area of land under such controlled conditions that damage by the flood water bearing it shall not be possible or shall be reduced to a minimum."[92] This could be done by constructing sluice-gates on embankments and engaging government staff to regulate the flow of floods, whereby allowing the deposit of silt but not of sand and other unwanted sediments.

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[90] Deputy Commissioner of Darrang to the Commissioner of the Assam Valley Districts, No.1757R, Tezpur 19 March 1908, Proceedings of the Government of Eastern Bengal and Assam, Revenue Department, Rev.-A, May 1909, ASA.

[91] 'General Notes of a Preliminary Tour of Inspection up in May and June 1908 in regard to the Effect of River Floods on Soil and Cultivation in the Assam Valley Districts', Agricultural Chemist, Eastern Bengal and Assam, 25 October 1908, Proceedings of the Government of Eastern Bengal and Assam, Revenue Department, Rev.-A, May 1909, ASA.

[92] ibid.

To S. G. Hart, the Director of Agricultural Department, all practical problems related to the floods and silt involved the dual question of engineering as well as of finance. He argued that no expensive experiment was required to demonstrate the widely held opinion that by embanking rivers, low-lying and formerly uncultivated land that suffered deep inundations could be brought into cultivation. However, he claimed that "One good reason why more embanking is not done is that if river water is kept off the land, no more fertilizing deposit of silt will be received and, in course of time, it may prove that the embankment causes more loss than gain to the estate."[93] What was not yet known was whether land could be made to yield a better harvest by bringing the benefits of silt while protecting the crop from floods. Agreeing to the agricultural chemist's conclusions, he observed that the answer to this seemed to lie in maintaining sluices on embankments and a staff to operate them so that the flow of floods could be regulated.

The large outlays of cost involved in all these measures for controlling flood-waters to take advantage of silt which could be counted with no "reliable scientific accuracy", however, appeared to the colonial government to be highly prohibitive from a financial point of view. The Lieutenant Governor admitted that it was not possible in the given circumstances to spare the considerable number of agricultural scientists and officers required for carrying out a meaningful experiment to settle the question, as they were presently engaged in matters "likely to prove of greater immediate benefit." The government was therefore ready "to accept the physical facts of the Province as they are, and thinks that *better results can be obtained by increasing adaption to the prevailing conditions than by attempts to modify them*, which can be successful only on a very small scale and under exceptionally favourable conditions."[94] Under the prevailing calculations of political economy and material circumstances in the first decade of the twentieth century, it was financially more viable for the

[93] S. G. Hart, Director, Department of Agriculture, Eastern Bengal and Assam, to Secretary to the Eastern Bengal and Assam, No.299G, Shillong 18 January 1909, Proceedings of the Government of Eastern Bengal and Assam, Revenue Department, Rev.-A, May 1909, ASA.

[94] Chief Secretary to the Government of Eastern Bengal and Assam, to Secretary to the Government of India, Department of revenue and Agriculture, No.1066R, Shillong 21 April 1909, Proceedings of the Government of Eastern Bengal and Assam, Revenue Department, Rev.-A, May 1909, ASA.

colonial state to advocate "adaptation" over "modification" in dealing with floods, an equation which was to reverse a hundred years later under the regime of a state to which it transferred power. Be it as it may, as would be subsequently argued, when the state did vie for an engineered modification of the lived environment over adaptation to the floods after a century, the basis for the preference this time too was similar, i.e., the considerations of political economy and of private profit.

Coming back to the early twentieth century, one finds evidence of villagers complaining against the shutting-out of floodwaters by embankments and demanding provisions of cuts and sluices on them so as to prevent water-logging and to allow the silt to fertilise their fields. As the Commissioner of Assam Valley Division remarked of the embankment on the southern bank of the Dihing River in May 1928, "I should gather from the papers and from what I know of the locality that the existing bund prevents the flood water from getting out when it has got in; the Dihing rises and falls very rapidly. There are evidently two sides to the question, some villages wanting the silt which the bund keeps out."[95] The officer, however, was "inclined to leave things alone" as an easier alternative to the spending of government money for the benefit of the *raiyats*.

The question of the impact of embankments on floods resurfaced when the government was considering the extension of the south-bank embankment of the Dihing River in 1928, covering a length of almost 18 miles. The expert opinion of the Executive Engineer on the question was tentative, even though inclining towards giving a go-ahead to the proposed extension. He noted,

> It is a very difficult matter to say how far an embankment of this nature would aggravate the floods on the North bank of the river, it would I think have the effect of raising the flood level on that side, but to what extent it is impossible to say without very extensive investigation and collection of data, possibly and I am

[95] Commissioner of the Assam Valley Division to the Deputy Commissioner of Lakhimpur, No.257F, Guwahati 4 May 1928, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Nos.1184-1246, Rev.-B, September 1928, ASA.

> inclined to think it would not raise the flood to any appreciable extent. It would however certainly raise a cry from the inhabitants of the north bank with the ostensible object, whatever the real effect, of having an embankment constructed on the north bank as well. I do not think that the construction of this extended embankment on the south bank would have any bad effect on the regime of the river itself by encouraging the bed to silt up, or in other respects.[96]

The effects of embankments on the regime of the rivers were not yet scientifically studied to assess their desirability as a means of flood-protection. In any case, the colonial government decided on the question from a predominantly financial point of view, which far overweighed the larger and long-term implications of the prevailing methods of flood protection.

The Earthquake of 1897 and its Aftereffects

The single event that brought the question of floods and flood-protection in the Valley to the notice of the colonial administration was the high-intensity earthquake of 1897. It considerably altered the river system and the landscape of the Valley in general, much like the one which followed in 1950. The earthquake occurred on 12 June 1897, and its impact was felt in the lower and central portion of the Brahmaputra and Surma valleys. After enquiries, it was found that the earthquake had considerably affected the river-system. It was observed in 1898 that

> The effect of the earthquake on the drainage of the country and navigation of rivers was [equally] great. Rivers were blocked, and in many cases their courses changed; the tanks, hollows, *bils*, and wells were filled in with sand. Vast areas of land were covered with sand springs. Banks of rivers sank and their beds were raised, and navigation of rivers affected. The subsequent floods inundated a

[96] E. P. Burke, Executive Engineer, Lakhimpur Division to the Deputy Commissioner, Lakhimpur, No.2711, 5 April 1928, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Nos.1184-1246, Rev.-B, September 1928, ASA.

> large tract of country, damaged crops and houses. Owing to the floods, it was alleged that the country generally subsided during the earthquake.[97]

As for the commonly held opinion among the people that the general level of the Valley had sunk since newer areas were now submerged by floods, an investigation into the aftereffects of the earthquake found that such opinion was rife because of the sinking of the river embankments resulted in the flooding of low-lying areas. Moreover, "The raising of the river beds has also, to some extent, tended to make the ordinary floods overtop the banks and submerged the country." The 'sand-springs' or moulds of sand that were thrown up by the earthquake also raised the beds of rivers, tanks, *bils*, and hollows, created sand bars across running streams, and in general disturbed the drainage system of main rivers of Asom. In the Goalpara district many sand bars were formed across the Krishnai River nine miles from Goalpara, so much so that the stream started to flow in another channel near Jira *haat*. Moreover, "The *chur* lands of Brahmaputra sank in many places as shown by the numerous dead trees standing. During the earthquake the made-up soil underneath the trees just like road embankment near river channels sank, and disturbed the roots of trees, causing them to be dried up, especially as the soil is sandy."[98] As for the effect on the rivers,

> The force of the earthquake has had much effect in raising the beds and depressing the banks of rivers. But the effect is more remarkable in the case of small rivers than large ones. Rivers of small width have been blocked up and sometimes their courses changed. But in the case of large rivers, the current has been powerful enough to scour the bed and resume its normal depth… As in the general sinkage, so in the river beds, the same difficulty in comparing the old and new levels arises. No previous data available."[99] Moreover, "There are cases when the bed has become now level with the bank and is entirely dry. Following its course both above and below this, it is found that the channel is diverted,

[97] Matadin Sukul, Assistant Engineer on Special Duty, 'Earthquake Report on Certain Parts of Assam, 1898', Shillong: Assam Government Press, 1898, p.2.
[98] ibid., p.11.
[99] ibid., p.12.

> sometime falling into the older bed lower down, and at others, it follows a different course altogether.[100]

The report by Matadin Sukul, the assistant engineer on special duty, made certain specific observations on the Brahmaputra. It was regretted that only indirect measures could be used to examine this river, as it was prone to change channels and shift throughout its extensive bed. On the basis of comparing a decade's records kept by the only river gauge on the Brahmaputra at Guwahati, he concluded that "either the bed has been raised by a foot on the whole, or a sand bar has been formed lower down which has kept the level of water higher than usual."[101] The other source of information about the river was the steamship 'Commander's Report Book' maintained at Dhubri and Gauhati, where "the commander of every cargo steamer puts down remarks as to the state of the river for the guidance of the steamers that follow." Comparing these records, it was found that "the stream does not appear to be shallower than before."[102]

But the floods after the earthquake were more severe and damaging than before. Due to the floods in the Brahmaputra in the Goalpara district, in 1898

> The whole pargana of Mechpara, especially that portion of it which lies between the Assam trunk road and the Garo Hills was under 5 to 9 feet of water, and there was absolutely no cultivation. All the villages were abandoned, and the people with their cattle had to save their lives by going to the Garo Hills and elsewhere where the ground was high. Some of them have since returned to their homes, but many villages are still unoccupied. The country throughout has received a covering of almost pure sand not less than 2 to 3 feet of thickness, rendering much of the land for some time unfit for cultivation. The whole country now looks like a sandy desert."[103]

In Darrang district, the Nonai River on the north bank of the Brahmaputra which came down from the Bhutan Hills, flooded the country in its valley in an

[100] ibid., p.12.
[101] ibid., p.18-19.
[102] ibid., p.19.
[103] ibid., p.23.

unprecedented manner just after the earthquake, which made its banks sink and bed raised.

> Many of the people living by the river side had to abandon their houses and build them on higher ground… the training of the river and a protection *bund* on both banks [is] necessary… By the construction of above *bunds* [which he enumerates], the river may be confined within proper limits, and thereby scour its bed to such an extent as to render its navigation easy, even up to a higher point than at present.[104]

The effects of the earthquake however were not entirely one-sided and necessarily adverse. The changes in the Jia Rowta river as a result of the earthquake seemed to have opened new possibilities for cultivators, as "great hopes are entertained both by the mauzadar of Orang and the people that the cultivation will extend on the left bank, as the land is commanded by the *dongs*, which are small artificial channels cut by the villagers for irrigation purposes."[105]

The overall impression made by the tremor on the drainage system of the Valley was that the "Rivers have got blocked and dry, and in many cases their courses have been entirely changed. *Bhils* have been reduced in size, and in some cases have totally disappeared by the raising of their beds to the general level of their country."[106] Most of the rivers were found in almost a similar state, and the propensity to floods by spill over had been found to have increased universally after the disturbances caused to the river system as a whole. In fact, the subsequent floods did more damage than the direct damage caused by the earthquake of 1897. The water-bodies such as *khal*, *beel*, *dong*, etc. and low-lying areas were silted up, thereby reducing the capacity of the Valley to retain flood water. The measure which was with equally universal applicability suggested was the construction of new *bunds* or embankments on the rivers, and in some cases, of clearing blockades and debris on their channels. But while suggesting bunds for protecting the agricultural tracts in the Nowgong district, it was

[104] ibid., p.26.
[105] ibid., p.31.
[106] ibid., p.82.

pointed out that much of the *chapori* land that was close to the Brahmaputra and was "always subject to being submerged by the flood waters of that river", could not be expected to be saved through construction of *bunds*.[107]

Other official enquiries were also carried out to assess the damage and distress caused by the earthquake and the subsequent floods. D. H. Lees, the Director of Department of Land Records and Agriculture, enumerated the extent of damage done by the earthquake in the districts of Nowgong and Kamrup.[108] The direct or indirect damages caused by the tremor were found to be of several kinds:

> (i) Deposits of sand ejected from fissures in the earth at the time of the actual earthquake (worse in Kamrup than in Nowgong), (ii) Floods which actually destroyed or damaged crops, cattle and granaries. These floods are said to have been higher than before. The cause apparently was destruction of river banks and the elevation of river beds, causing rivers to quit their beds and wander over the countryside. This was especially the case with the Pagladia in North Kamrup and the Kopili in Nowgong, besides the Brahmaputra itself, (iii) Deposits of sand left by the floods…[109]

Lees observed that the most important direct result of the earthquake as far as the losses to the *raiyats* was concerned, was the destruction of *ahu* and *bao* crops, and the damage caused to *basti* land by deposits of sand spurting out from the fissures in the ground. The sand deposits were most extensive in the *mauzas* of Kamrup district on the two banks of the Brahmaputra, where *ahu* and mustard was cultivated through *jhum*. In the villages inundated immediately after the earthquake, almost the entire *ahu* crop was destroyed. In parts of the district the earthquake was reported to be immediately followed by a sudden rise of water from the rivers and *bils* which had been partly filled up with sand by the earthquake.

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[107] ibid., p.37.
[108] F. C. Henniker, Officiating Director, Department of Land Records and Agriculture, Assam to the Secretary to the Chief Commissioner of Assam, No.2374, Shillong 18 May, 1898, Assam Secretariat Proceedings, May 1898, ASA.
[109] ibid.

Both in the Kamrup and Nowgong districts the floods inundated villages which the *raiyats* said were previously immune and were above the flood-level. During the floods the *raiyats* of many inundated villages moved to the highest ground that could be found and built temporary huts. Enquiries discovered that the *raiyats* of Bagribari *mauza* and the south-western parts of Rupasi *mauza* migrated to Goalpara. In comparison to the previous year, the area under cold-weather crops decreased by 32 percent in 1897-98 in these two districts. The harvest of mustard was poor in the riverine tract. Throughout the fluctuating *chapori* lands on the Brahmaputra, it was found that *raiyats* resigned all land spoilt by sand deposits or submersion. Only in the densely-populated regions like the villages of Uttar and Dakhin Sarubangsar *mauzas* – where land revenue was paid even if the fields were allowed to remain fallow due to the high demand for land – relinquishment of land damaged by sand deposits was not resorted to. Moreover, owing to the great height of the floods following the earthquake, the peasants chose to cultivate as high lands as possible in the next season.[110]

After official enquiry it was also found that the loss of early rice (*ahu*) in Kamrup district was one-fourth of the total cropped area, and of *bao* (late rice, sown broadcast) a little less than one-fourth, whereas the loss of *sali* (late transplant rice) amounted to only one percent. Moreover, the late subsidence of the floods due to the obstruction of the drainage system retarded the sowing of cold-weather crops and resulted in a drastic falling off in the total area sown in Kamrup. In 1898 only 250,137 *bighas* were under cultivation as against 372,854 *bighas* cultivated in the preceding year.[111]

The flood-distressed peasants made a representation to the Chief Commissioner in August 1897 – barely a month after the earthquake – requesting him that "the revenue demand on all *khiraj* lands that have been rendered useless by flood be suspended, and that all *nisf-khiraj* lands which have similarly suffered be

[110] D. H. Lees, Assistant Commissioner on Special Duty, to the Director, Department of Land Records and Agriculture, Assam, Gauhati 25 April 1898, Assam Secretariat Proceedings, May 1898, ASA.
[111] 'Resolution', *Extract from the Proceedings of the Chief Commissioner of Assam in the General Department*, No. 2869R, 3 June 1898, Assam Secretariat Proceedings, May 1898, ASA.

assessed at waste land rates for that class of land."[112] They also asked for medical aid to the villages where epidemic had broken out, along with a full government enquiry into the conditions of the people. The Chief Commissioner, without making any clear reference to the requests, merely

> expressed a hope that the floods, by depositing silt, might to a large extent so revitalize the soil that the ensuing crops would compensate for the damage done in one particular year. Unfortunately, however, the reports in hand show that the Brahmaputra and its tributaries have generally currents so rapid that the water brings down sand, not silt. It is only the sluggish streams of East Bengal – or in this province the district of Sylhet – that fertilize the soil by their deposit of silt. It may also be noted of the floods that they damage crops in two ways, i.e., both by the rapidity of the current which actually carries away the plants, and by the depth of water, owing to which the plants are submerged, and so die… in the Kamrup district as much as 140,347 *bighas* of *ahu* and 58,043 *bighas* of *bao* rice were destroyed in this way, or about one-fourth of what would be an average crop.[113]

The earthquake of 1897 was a significant event that highlighted the active seismicity of the Brahmaputra Valley region, capable of transforming the landscape in no time, but with long-lasting aftereffects. The signs of the Brahmaputra and some of its tributaries becoming shallow and its bed raised by deposition of sediments – a probable result of the earthquake of 1897 – were noticed by the colonial officials as late as in 1916. According to the report of the Deputy Commissioner of Lakhimpur that described the floods that year, "it is probable that the bed of the Brahmaputra is silting up here. That of the Dibru 'suti' certainly is, if this is the case and the process continues more local record floods may be expected."[114] As the colonial government found out in this and numerous other occasions, the upheaval greatly affected the river system of the region, which in turn had influenced the settlement and agricultural practices of

[112] ibid.
[113] ibid.
[114] L. O. Clarke, Deputy Commissioner of Lakhimpur to the Commissioner of Assam Valley Districts, No.522G, Dibrugarh 4 July 1916, "Report on the Floods in the Lakhimpur District in July 1915", Assam Secretariat Proceedings, Revenue Department, Rev.-B, Nos.374-376, File No.F-25R, August 1915, ASA.

the people. This also considerably redefined the lowlands and highlands of the Valley, thereby making newer areas flood-prone while making some others flood-immune. This earthquake at the same time triggered a series of fresh interventions by the state in the next decades that aimed at flood-protection, much like the tremor of 1950 which brought about a renewed effort at flood-control through river embankments.

Floods and the Fields: Early Twentieth Century

While the demand for new 'public' embankments were frequently turned down by the colonial state in the nineteenth century on the basis of financial calculations, the same reasoning also prompted it to take up the construction and repair of such embankments in the beginning of the next century. Learning from the experience of negotiating the floods in nineteenth century Asom, the colonial authorities were now gearing up for a new set of works for flood protection in the first decade of the twentieth century. The government proposed to undertake the restoration of a "complete system of main bunds" in Sibsagar district in the winter season of 1902.[115] Two native residents of Sibsagar advised the government, "The *bund* should be constructed strong enough and high enough to meet the flood. The Dihing and Disang *bunds* erected recently are total failures as measures of protection, simply because they are low and weak", and therefore they insisted that "In making plan for the erection of the *bunds*, we would suggest that Government would condescend *to consult with people who know the state of the rivers and their floods*."[116] The following plan was drawn up by the government for the proposed embankments:[117]

[115] Proceeding Nos. 26-27, Assam Secretariat Proceedings, Revenue Department, December 1902, ASA.
[116] Srijut Someswar Barua and Babu Akshyaya Kumar Ghosh to the Deputy Commissioner of Sibsagar, Sibsagar 17 September 1902, Assam Secretariat Proceedings, Revenue Department, December 1902, ASA.
[117] Proceeding Nos. 26-27, Assam Secretariat Proceedings, Revenue Department, December 1902, ASA.

Proposed Embankments in Sibsagar, 1902

Name of *bund*	Total length (miles)	Length to be restored (miles)	Extent of country it would protect	Probable cost of restoration and repair (in rupees)
1. Brahmaputra *bund*	24	24	54 sq.m.	1,62,500
2.Dhai Ali	18	1½	……	5,650
3. Barbarua Ali	19	…..	……	Complete
4.Dehing *bund*	7	3	56 sq.m.	11,000
5. Desang *bund*				
(a) First section	6	6	12 sq.m.	17,000
(b) Second section	4	…..	10 sq.m.	1,000
(c) Third Section	9	…..	16 sq.m.	1,000
6. Dihku *bund*				
(a) Bor Ali	20	15	About 50 sq.m. south of the *bund*	23,750
(b) Nazira Ali	8	……	8 sq.m.	Complete
(c) Tax Ali	6	2	18 sq.m.	5,400
7.Desangmukh road	9	…..	…..	Complete

Though the restoration of the Brahmaputra *bund* was found to be "risky" since it involved a large outlay accompanied by uncertain results, it was decided that the other embankments would be restored without delay.[118] In the same year, the Chief Commissioner appointed a committee to enquire into and report on the floods of the various rivers that affected the Sibsagar district, and to suggest the necessary protective measures. The provincial Director of land Records and Agriculture was the president of the committee, while its members were the Deputy Commissioner of Sibsagar, the executive engineer, the assistant director of Land Records and Agriculture, and three members of the Sibsagar Local Board. Matadin Sukul, the Executive Engineer of the PWD deputed to special duty for this purpose, submitted his report after conducting field visits in April 1903. He identified six major rivers that caused damage in the district: Brahmaputra, Dehing, Desang, Darika, Dikhu and Jhanji. Sukul suggested that the colonial government take up the construction and restoration of sixteen river embankments to rein in these rivers in the following order of priority:

[118] ibid.

(1) Dehing bund from Nahorkutia to the Assam Trunk Road, 41.4 miles.
(2) Dikhu bund, left bank, 1st and 3rd sections, with improvement of 2nd section from Bamunpukhuri to near Gaurisagar, 26¼ miles.
(3) Dikhu bund, right bank, 1st section, from Assam-Bengal Railway to Serekapar, and improvement of 2nd section from Serekapar to Tax Ali junction, 14.6 miles.
(4) Desang bund, left bank, 1st section, from Dhodor Ali to Sologuri Ali, 16.6 miles.
(5) Darika bund, left bank, from Dhai Ali to Harmatigarh, 5¼ miles.
(6) Dikhu bund, right bank, 3rd section, from Tax Ali junction to Darikamukh, 21.2 miles.
(7) Dikhu bund, left bank, from near Gaurisagar to Rupahi bridge of Dikhumukh road, 13.4 miles.
(8) The Brahmaputra bund, 3rd section, from the terminus of the Dikhu bund, left bank, to Kotaikhamgarh crossing of dead Jhanjhi, 3.7 miles.
(9) Desang bund, right bank, 1st, 2nd and 3rd sections, from Assam-Bengal Railway bridge at Dilli to Dhai Ali, 57.5 miles.
(10) Darika bund, left bank, from Harmatigarh to Darikamukh, 12½ miles.
(11) Darika bund, right bank, from Assam Trunk Road to Dillimukh, 8.2 miles.
(12) Brahmaputra bund from Desangmukh road to Dikhumukh, 6½ miles.
(13) Brahmaputra bund from Dhai Ali to Balomamukh, 10¾ miles.
(14) Brahmaputra bund from Jorhat State Railway line to Nigriting, 16 miles.
(15) Brahmaputra bund from Kotaikhamgarh to Jorhat State Railway line with bunds along its tributaries, 35 miles.
(16) Desang bund from Balomamukh to Dhai Ali, 6.5 miles

The amount of outlay for the proposed work was calculated to be above two hundred thousand rupees, of which more than ninety percent was earmarked for the construction of new embankments, while the rest for the improvement of the existing ones. The distribution of the outlay on the proposed embankments on the six rivers was as follows:[119]

1.Dehing bund:	Rs.3,49,976
2.Desang bund:	Rs.4,62,168
3.Dikhu bund:	Rs.3,49,588
4.Darika bunds:	Rs.1,62,479
5.Brahmaputra bund:	Rs.5,63,929
6.Improving existing bunds:	Rs.1,81,500
Total:	Rs.20,69,640

[119] 'Note by Pandit Matadin Sukul, Executive Engineer, Public Works Department, Assam, on the protective embankments in sadr subdivision of Sibsagar district and portions of Sibsagar and Lakhimpur districts', Sibsagar 6 April1903, Nos.180-208, Assam Secretariat Proceedings, Revenue-A, September 1904, ASA.

The Brahmaputra received the highest amount of resources, followed by the Disang, Dehing and Dikhow. The entire embankment system proposed, once completed, was estimated to protect 184,900 acres of cultivable 'waste' due to the inundations of the six rivers. The executive Engineer noted that

> Out of the total area of 681,700 acres (1,065 square miles) lying within the eleven blocks… 246,500 acres is culturable waste which will be available for ordinary cultivation. Out of this area, 184,900 acres are affected by floods which will be protected by the proposed bunds at a total approximate cost of Rs.16,61,640… The whole of this land was formerly under cultivation and is highly spoken of by the Assamese who will, it is believed, again extend their cultivation to these areas. There are several over-populated areas in Sibsagar and Lakhimpur districts, from which cultivators will migrate in large numbers instead of migrating to distant and unknown lands in other districts… I firmly believe that the land will be eventually cultivated at no distant time.[120]

It was expected that the cost of the project to be borne by the government would be easily defrayed by the profits resulting from an expanded land revenue base. The colonial officials calculated that, when the entire 184,900 acres of flood-protected land was cultivated, there would be an increase of Rs.5,54,700 to the annual revenue as per the prevailing rates, which was to be a 29.8 percent enhancement of profit on the capital outlay. It was noted that the 60 odd miles of restored embankments in Sibsagar was already yielding a profit of 32.7 percent, and such a high rate could also be expected from the proposed works. Similarly, the *bund* along the south bank of Brahmaputra from Dikhumukh to Nigriting which was to protect a riverine tract "29 miles long and 2 miles broad, or 58 square miles or 38,120 acres", had the potential of bringing the government a rate of profit upwards of 25 percent.[121]

Proposals involving such large outlays of funds for flood-protection in the early years of the twentieth century indicated a new approach of the colonial state's scientific experts towards the rivers. They were now advocating projects

[120] ibid.
[121] ibid.

comparable in magnitude to those taken up by the Ahom kings, but in a different social and economic context. This was a clear break from the colonial approach to the question of embankments in the nineteenth century as well, even if more at the level of ideas than in practice, since the colonial state was not yet ready to sanction the required funds for such a massive embankment project in its entirety.

When the state did sanction funds for big projects in the early twentieth century, it was accompanied by an expansion in the avenues of revenue generation. The construction of a 14 miles-long embankment along the Gosaingaon Suti and Kukila River in the Northern Jorhat Group in 1904-05 undertaken by the government at a cost of Rs.43,623 also saw a steep increase of Rs.38,735 in the annual land revenue assessment.[122] The annual land revenue demand of Rs.85,575 for the Group was now enhanced to Rs.1,24,310, which was a one-time increase by 45 percent. The enhancement was considered to be "very large" even by the settlement officer. However, he argued that since the colonial government was in the process of "constructing at a heavy cost a protective work which, though in a few cases may lessen the value of land [by making parts of it waterlogged], will in the great majority of cases transform unculturable land or land liable to heavy inundation into fertile and immune rupit", there was nothing wrong in demanding a high rate as applicable to lands "protected" from floods.[123]

The colonial officials contended that after completion, the embankment was to protect nineteen villages wholly or in parts, thereby opening up land for the landless in a few years' time, thereby bringing "a welcome relief to the congested villages near Jorhat."[124] The enhanced assessment was justified by the protection from future floods which the embankment was to provide. As the settlement officer noted, "In the whole area I am proceeding on the assumption, in framing rates, that the villages will be entirely protected from floods, and will not be

[122] 'Assessment Report of the Northern Jorhat Group', Assam Secretariat Proceedings, June 1905, Rev.-A, ASA.
[123] ibid.
[124] ibid.

water-logged."[125] It was also admitted that the new rates of assessments would be unrealizable if the embankment failed to deliver the desired results, and "If the *bund* does not fulfill its purpose, it will be necessary to entirely revise the settlement."[126]

After the 'abnormal' floods of 1916 in Sibsagar and other Brahmaputra Valley districts, "Rai Sahib Phanidhar Chaliha stated that it was desirable that bunds along rivers should be raised and widened, and the late government pleader Babu Akhoy Kumar Ghose said that in places they should be re-aligned and taken further back from the river", the Chief Commissioner was informed.[127] The executive engineer also agreed that this would be desirable, but as the cost involved would be heavy, the government was against trying anything of the kind at present, though there was no objection in principle to putting up *bunds* where they were really required.[128]

The argument of "financial stringency" nevertheless was a refrain that was continued to be articulated by the colonial officials while responding negating demands for embankments and other flood-protection or anti-erosion works. This was even when the construction of embankments was expected to bring vast areas of uncultivable riverine and low-lying land under permanent cultivation, particularly in the thickly populated districts of the Valley where lands immune from normal floods were almost wholly taken up. For instance, the cultivation in the "immune villages" of North Jorhat Group of *mauzas* in Sibsagar district was considered to be very thick, and "nearly all the available land has been taken up."[129] As a result the *Assessment Report* for this Group found in 1905 a gradual expansion of cultivation into the inundated area close by the Brahmaputra, even though "the great bulk of the unsettled area in these villages is, in the absence of protective works, practically unculturable." The *Report*

[125] ibid.
[126] ibid.
[127] Note by B. C. Allen, Chief Secretary to the Chief Commissioner of Assam, 15 July 1916, Rev.-A, August 1917, Nos.118-137, Assam Secretariat Proceedings, ASA.
[128] ibid.
[129] 'Assessment Report of the North Jorhat Group', Assam Secretariat Proceedings, June 1905, Rev.-A, ASA.

further observed that "A Brahmaputra *bund* would no doubt render culturable a very vast area of land at present useless". But apprehension was expressed in the same breath that "its construction would be a very formidable matter."[130] Similarly in Guwahati, where demands were placed before the government for flood-protection works in 1923, the response was in the negative. Explaining the reasons, the Commissioner of the Assam Valley Division wrote,

> Private owners are affected by the erosion of the river [Brahmaputra] and government property is not concerned. On the other hand the protective work will involve an expenditure of more than a lakh of rupees which is not possible to provide in these days of financial stringency, although government helped the Dibrugarh and Nowgong municipalities with small special grants in the past for the purpose of protecting the towns from the erosion of the rivers."[131]

However, demands for the construction and maintenance of embankments to protect villages were continued to be raised in the subsequent period as well. Peasants from fifty villages of the Tingkhang and Khowang *mauzas* in Lakhimpur district, for instance, drew attention of the government in October 1927 "to the disastrous effects of the annual floods which, by destroying our crops, send up the price of food-stuffs in the area, force the ryots into the hands of money lenders and impoverish us all."[132] The floods which inundated a region covering nearly ten square miles, they said, were due to the insufficient height of a stretch of the Dehing *bund* between the 19th and 21st milestones at Kinduguri, constructed in 1923. When the Dehing River was in spate during the monsoon, the water passed over and breached its embankment, damaging the villages on its course and also seriously injuring both the Solaguri Ali and the Local Board Road. Though the Local Board annually took up the repair of the *ali*, it was complained that since the contract for the work invariably went to a "local Marwari who had no interest in their preservation" and "grossly neglects the

[130] ibid.

[131] Memo No.485-7, Commissioner of Assam Valley Division, 5 October 1923, 'Protection of the Foreshore of the Brahmaputra at Gauhati', Nos.4-6, L.S.G.-B, Assam Secretariat Proceedings, ASA.

[132] Bibekananda Bora and others, to Lakheswar Barua, Member of the Legislative Council, Lakhimpur 9 October 1927, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Nos.1184-1246, Rev.-B, September 1928, ASA.

work", the *raiyats* had to suffer hardship. During the rainy season, the crop remained under water for around 25 days as a result, destroying or washing away much of the paddy. The villagers referred to the damages done by the floods of September 1928, noting that

> The floods of this year were abnormal, there having been three distinct inundations: but we would press on your notice the fact that at least one flood comes every year, and that this flood could be prevented by proper repair to and supervision of the Dehing bund.[133]

The villagers also requested the government to transfer of the responsibility of maintaining the *bunds* in their locality from the Local Board to the PWD, and also to enquire into the "wretched state into which our affairs have fallen." The objective of the villagers in asking for a government enquiry to assess the damage done by the recent floods was to appeal for grant of land revenue remission for the 1928.[134] The floods caused by the Brahmaputra that year appeared to be "the highest experienced for a great many years" in Lakhimpur, admitted the colonial administrators of the district. The *chaporis* or the low-lying riverine tracts were the most severely affected, where cattle had been carried away and the grazing lands were badly damaged by sand deposits.

The intensity and impact of destructive floods indeed appear to have grown in the twentieth century in comparison to the nineteenth, though the reasons for this are much more complex than it may appear at the first glance. The official archive recorded the predicament of the people affected by the destructive floods, even though they had the general tendency to understate and underestimate the extent of damage and the degree of distress among the people. Considerations of revenue collection, the need to allow revenue remission and other flood mitigation measures that were almost always demanded by peasants and other classes after a destructive flood were reasons for this underestimation.

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[133] ibid.

[134] The demand raised with the government by villagers adversely affected by floods recurs throughout twentieth century. Villagers of Kamuguri, Karaibari and Bhuyanpara villages in the jurisdiction of Bijoni *mauza* in Barpeta petitioned the government in 1942 to construct a bund on the banks of the Kakaidia River. File No. RL 24 of 1942, Assam Secretariat Proceedings, ASA.

The report of one Sub-divisional Collector about the floods in Lakhimpur in July 1921 is instructive in this regard. He reported that

> an unprecedented flood from the river Brahmaputra has been passing through almost every village of the mauza Dhakuakhana and Maskhowa of the mauza Gohaingaon. The flood began from 11th instant and has continually been rising. Some of the villages have been affected to such an extent that the granaries and the dwelling houses of the majority of the people are under water, and some houses and granaries have already been washed away by floods. It is simply horrible to think what will be the fate of the people who have been and are suffering from such distress. To think of their property, cultivation, and cattle are at present out of question. All their care and attention are now being engaged to save their own lives. It has been reported that some 3 or 4 families in the villages Jamuguri are drowned and washed away.[135]

Though there is no reason to believe that the native officer reported more than what he saw and heard in the inundated villages, his superior colonial officer K. Cantile considered it to be nothing more than an "alarmist report by a new officer."[136] On the basis of the Excise Inspector's field report prepared a week later, this officer concluded that the only substantial problem the *raiyats* in the *mauza* faced was "a lack of food in a month of so from now". To this British officer, the Excise Inspector's report was much more reliable since it depicted the impact of the floods moderately, i.e., in accordance with the colonial convention of understatement on the question of damage caused by floods. However, if the following description of the "General Condition of People" in the Excise Inspector's report is to be considered an understatement, what would have been the degree of distress among the people in reality could be well imagined. The Excise Inspector G. Borbora wrote,

[135] K. Gogoi, Subdivisional Collector, Camp Bordoloni 17 July 1921, 'Flood in North Lakhimpur', Assam Secretariat Proceedings, Nos.110-123, Rev.-B, January 1922, ASA.
[136] K. Cantile, Subdivisional Officer, North Lakhimpur, to the Deputy Commissioner, Lakhimpur, No.1104D, 21 July 1921, 'Flood in North Lakhimpur', Assam Secretariat Proceedings, Nos.110-123, Rev.-B, January 1922, ASA.

> The condition of people is in a very deplorable state. Most of the people have one meal a day. The poor class people of Dhakuakhana has [sic] not been able to arrange for a meal in a day even. They are to fast continually for a day or two. They generally live on fruit and plantain. Their number, I think, will not be less than 5 percent of the total population. Excepting the high Mochanged [platform] houses of Bebezia, almost all the dwelling houses of Namrupia, Jalbhare and Dhakuakhana are under water varying from 1 to 4 feet. The people cook and sleep on Mochangs temporarily erected for the purpose. The general scarcity is expected soon because the outturn of 'Ahu' is not good, and the prospect of 'Sali' crops is also not favourable due to recent flood and want of seedlings… I expect ½ the population would exhaust their stock of 'dhan' (both 'ahu' and 'sali') in a month or so. The rest would, also, by that time not have sufficient stock to make any margin for the hungry people. Consequently the people are anticipating a very hard time. The condition of the Miris [Mishing] who generally depend upon 'ahu' is worse than the local people.[137]

While the requirements for flood-protection measures were regularly deflected in the nineteenth century as well as in the twentieth, the financial considerations of the state generally influenced its officers to under-report the actual distress and loss to the people due to the floods till the very end of colonial rule. They equally undervalued the people's needs for flood-mitigation measures such as revenue remission and suspension, agricultural loans, gratuitous relief, fresh land for flood-affected *raiyats*, etc. for the same consideration of a loss to the revenue assessment. The steps taken by the colonial government at flood mitigation are examined in the next chapter.

As it would be argued subsequently, the state tried the exact opposite of undervaluing the destructions caused by flood after the transfer of power in 1947. At a time when land revenue became an insignificant component of income to government exchequer and bureaucratic capital was looking for other avenues of profit, it represented the damaging and destructive aspects of floods in a magnified manner. The most important resource was electricity to be generated

[137] Report by G. Borbora, Inspector of Excise, 18 July 1921, 'Flood in North Lakhimpur', Assam Secretariat Proceedings, Nos.110-123, Rev.-B, January 1922, ASA.

through the construction of multipurpose dams and thereby 'harnessing' the numerous rivers flowing into the Brahmaputra Valley. To achieve this, floods needed to be represented as the biggest cause of sorrow to the people of the region and the gravest impediment to 'development', and the Indian State did precisely this in the second half of the twentieth century.

CHAPTER VI

LIVING RIVERS: COLONIAL STATE AND FLOOD MITIGATION IN THE TWENTIETH CENTURY

Relief and assistance as is necessary must be given to the villagers, but Miris are not people who have any great love for work; and if they thought that the Government was willing to feed them, they would not, I fear, attempt to help themselves.

- B. C. Allen, Commissioner of Assam Valley Division, 1921[1]

In spite of the general opinion held by colonial administrators in Asom that embankments as flood-protection structures were necessary for the 'improvement' of agriculture, financial considerations often overweighed the decision in favour of the government taking up the responsibility of constructing them throughout the colonial period, confining mostly the state's role to small amounts of financial assistance to villagers to repair old *alis* or bund-roads. After

[1] From B. C. Allen, Commissioner of Assam Valley Division, to the Chief Secretary to the Government of Assam, No.473R, Gauhati 13th August 1921, "Flood in North Lakhimpur", File Nos. 110-123, Rev.- B, January 1922, Assam Secretariat Proceedings, Revenue Department, ASA.

the earthquake of 1897 the impact of floods apparently went up caused by the disturbances in the drainage system of the rivers, bringing new and hitherto non-flooded areas within the reach of waters of the Brahmaputra and its tributaries. When floods took destructive forms, the damage to the crops was considerable not only in the *chapori* tracts buts also in the permanently settled and cultivated '*rupit*' areas. It was apparent to the colonial government that the destructive affects of the floods could not be entirely neutralized by depending on embankments and other flood-protection works alone. Different forms of measures had to be adopted to sustain the people who lost their land, homestead, cattle, harvest, etc. and other means of production to the abnormal and destructive floods. These measures were considered for the state not so much out of the concern for the plight of the people, as would be apparent from the discussion in the chapter, but more in order to ensure that the land revenue was not lost, and that the peasants did not abandon their flood-damaged lands *en masse* in search of new ones.

The measures adopted in such cases took different forms, and included revenue remission, postponement of land revenue, allowing the relinquishment of flood-affected lands, provision of new land for rehabilitation, distribution of grain, seeds, agricultural loan, various kinds of temporary relief works, and so on. Moreover, the first decades of the twentieth century also witnessed the efforts of the colonial state to inquire into the causes accentuating the destructive aspects of floods, a reason for regular loss of state revenue, and to find out whether and in what manner such causes could be suitably remedied within the framework of colonial policies.

Compensation as Claim: The Question of Flood Protection

In one of the early instances of holding the colonial government responsible for providing protection to the rent-paying settled lands from floods, a tea planter claimed "compensation for alleged injury done to some of his tea gardens in the Seebsagur district owing to the bund of the Deehing having been allowed to fall

into disrepair" in 1869. Reporting on the matter, Hopkinson, the then Commissioner of Assam, wrote

> Mr. Grob states that he bought the garden in question 1863, at which time he alleges the bund on the left bank of the Deehing was in good repair, and that it was kept in repair some time afterwards. That during the time Captain Holroyd was Deputy Commissioner of the district as much as Rs.16000 were spent in one year on the Deehing and Deesang bunds, but that in the years (we are not told what was the year) the inundations destroyed Mr. Grob's gardens. The Commissioner only granted the wholly inadequate sum of Rs.500 for the repair of the former bund, and therefore, as it was owing to the neglect of the local authorities to their duty in maintaining it in proper order that the loss of Mr. Grob has sustained was caused; he submits a claim for that loss amounting to one lakh eighteen hundred and ninety three rupees.[2]

The planter claimed that he bought the said lands only because the government recognized its "duty" to protect the banks of the Dihing and other rivers in Asom, and the losses that he suffered were due to the neglect of government officials to perform their duty.[3] The claim for compensation made by the planters who was considered to "follow mercantile pursuits", however, was not favourably considered by the state as it was contended that there was "no legal ground whereon to base his claim." The government argued, referring to the nature of the terrain in which Grob's tea garden was located,

> The mouzah in which his property lies is called Panee Deehingeah ['Of the Waters of the Deehing River'], signifying a locality liable to inundation from the waters of the Deehing, and a glance at the map… will show…that the mouzah referred to is entirely surrounded by the rivers Deehing, Dimoo, Deesang and Brahmaputro, and therefore *it is necessarily peculiarly liable to suffer from high floods, so that it is clearly a place where no prudent man should have invested money in cultivating a plant that perishes*, as Mr. Grob makes it out to do, from one submersion in river water, nor do I know of any other instance in Assam of a

[2] From W. Agnew, Officiating Commissioner of Assam, to the Secretary to the Government of Bengal, No.187, 14th June, 1869, Vol.34 of 1867, Series II, ASA.
[3] Ibid.

> tea garden being so situated that its existence depends on the maintenance of a public bund.[4]

The Commissioner emphasised that those gardens which had been threatened by flood waters were protected by embankments constructed by the owners themselves and not by 'public bunds'. The colonial government in fact was of the opinion from the early years of occupying Asom, that "When lands have been allotted to the Assam Tea Company or other associations or individuals engaged in the tea manufactory, it may be expected that their enterprise will be directed to increasing the means of subsistence by embankments and other works to improve the fertility, and increase the productiveness of the lands assigned to them."[5] When in 1940 Brodie requested the sanction of funds for repair and construction of river embankments in Sibsagar district, Government of India was categorical in stating that if these embankments fell within the limits of the land granted to the Assam Tea Company, the Governor General "would not think it necessary that the Government should incur any expense on account of them."[6]

However, Grob did nothing to protect his garden even with the full knowledge that the terrain on which his land was located was known to be a riverine tract, the government contended. It also suspected that the estate referred to was not considered valuable and worth protecting by the owner, yet he was trying to claim an unfair compensation in the pretext of flood damage. This was more evident, they argued, since the flood was not unexpected and the estate was long threatened by the possibility of inundation, "the bund [on the Dihing River] was weakened by gradual decay before the river finally burst through it." Though residing in Sibsagar, an important administrative centre, and in a position to inform the government of the impending danger, the planter did not take any initiative to prevent it or even failed to request the government for the same, the Commissioner argued. Thus, no steps "at all appears to have been taken such as prudent men should and unquestionably would have adopted to save from

[4] Ibid., emphasis added.
[5] Secretary to the Government of India, Political Department, to Agent of the Governor General, North East Frontier, Fort William 16 March 1840, 106-108 P.C., Foreign 1840-49, NAI.
[6] Ibid.

destruction of property that was rendered as valuable and it is incredible that an estate would have been thus supinely surrendered if it really had been valuable."[7] The government was of the opinion that the claimant was trying to take "undue advantage" of the floods, and that the garden was

> amongst the many others on which large sums of money were rashly spent during the time which large sums of money were rashly spent during the time that speculation in that kind of property ran high, and that when the reaction set in these gardens were abandoned from intrinsic worthlessness and that Mr. Grob would now like to recoup himself for his losses at the expense of Government.[8]

Denying any validity and genuineness of the compensation claim, the government also asserted that it never took the responsibility in the past to maintain the Dihing *bund* in the first place. Therefore, nothing was done to repair or maintain the embankment in good order by the government for years. This was because the district officers considered it useless to spend any part of the small sums at their disposal on a *bund* to protect a "poor mouza" as the one where the tea estate was located, where "The people have been seared away owing to the Brahmaputra floods."[9]

This issue, nevertheless, raised the larger question of the state's responsibility in protecting its subject's property from damage by flood through the construction and maintenance of 'public' or government embankments. The colonial state's general policy followed in the Brahmaputra Valley on this question in the second half of the nineteenth century, in any case, was of indifference. It was admitted by the Commissioner in 1869,

> In regard to the general question of the obligation of Government to provide or maintain river embankments throughout this division, I am clearly of opinion that *it would be very imprudent to embark on so gigantic an undertaking for even*

[7] From W. Agnew, Officiating Commissioner of Assam, to the Secretary to the Government of Bengal, No.187, 14th June, 1869, Vol.34 of 1867, Series II, ASA.
[8] Ibid.
[9] Ibid.

> *if funds were forthcoming for the purpose. I cannot see where we could hope to get labour to carry it out.*[10]

It was considered to be an enormous task to maintain the pre-colonial embankments, and in fact they were allowed to fall into disrepair by the colonial state. As a British engineer himself had been said to have testified, all the large rivers including the Brahmaputra were in former days embanked to prevent the devastating effects of extraordinary floods, but "since our occupation of the country these embankments have been much neglected, so much so that large tracts formerly under cultivation are now deep morasses or dense swampy jungles."[11] As a further justification of this admittedly conscious neglect, the Commissioner of Assam asserted,

> it was not until the year 1838 that we finally assumed the management of Upper Assam… a country that was then so utterly impoverished… that it only yielded insignificant sum of 83,742 rupees of land revenue, and *it is a monstrous injustice to say that government neglected its duty in not at once launching forth into extravagant expenditure on what seemed so unpromising an addition to its territory*"[12]

In a clear indication that the colonial government's policy of flood mitigation in the nineteenth century was fully contingent on considerations related to revenue generation, the officer noted, "As the revenues and importance of Assam however has increased, so in like proportion has government provided funds for works of public utility, but *a great embankment scheme would involve a vast outlay. An outlay in fact such as Assam is not at present in a condition to warrant government incurring on its account.*"[13]

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[10] From W. Agnew, Officiating Commissioner of Assam, to the Secretary to the Government of Bengal, No.187, 14th June, 1869, Vol.34 of 1867, Series II, ASA.
[11] Colonel Danis, former Executive Engineer of Upper Assam to the Ainslie's Commission, quoted in ibid.
[12] Ibid.
[13] Ibid.

Similar demands for compensation by the tea planters were made and turned down in the second half of the nineteenth century on analogous grounds.[14] From what can be seen from the developments that followed, it could be argued that this approach of the state hardly changed till the formal end of colonial rule, even when the demands for flood mitigation and relief from the peasants and other working people of the province grew in the first half of the twentieth century.

Negotiating Floods in the Early Twentieth Century

The colonial archive continued to record the intermittent failure or destruction of cultivation and the consequent loss of government revenue due to the floods throughout the nineteenth century, but also due to erosion and changes in the courses of rivers that at times led to the peasants claiming remission of rent. Such requests, which became more frequent by the end of the nineteenth century, were said to be nominal in the middle of that century. Answering the Bengal government's query as to "why any remissions are necessary, seeing that the Chowdries in consideration of high rate of commission granted to them, have made themselves responsible for government revenue", the district collectors stated that "remissions are never applied for", which effectively tells that such requests were rare and exceptional in the Valley during mid-nineteenth century.[15] And in case of such exceptions caused by extraordinary inundations or losses from the "devastations of the river", the peasant proprietors were entitled to remission, the provincial authorities wrote to their Bengal counterparts, circumstances which were always especially brought to the Bengal government's

[14] J. Knox Wight, the Deputy Commissioner of Sibsagar wrote in 1888, "In the days before 1866, when the *bunds* were kept in repair, persons were tempted to open out gardens… tea was planted and no doubt great expectations prevailed. But when repairs ceased to the *bunds*, the tract of country was inundated, and of course the tea plants were all damaged or killed. In the old records I find letters from the owners of Gohainpukri tea garden, in which they demand payment from Government of Rs.1,01,893, *i.e*., over one lakh of rupees, on the grounds of damage sustained owing to their being compelled to abandon the garden by reason of the Dehing river having overflowed and inundated it, in consequence of sufficient repairs not having been carried out to the *bund*." 'Note on the *bunds* in the sadr subdivision of the Sibsagar district', by J. Knox-Wight, Deputy Commissioner of Sibsagar, 3 February 1888, No.27, Assam Secretariat Proceedings, Revenue Department, December 1902, ASA.

[15] From Francis Jenkins, Commissioner of Assam, to E. J. Bivar, Secretary to the Board of Revenue for Lower Provinces, Fort William, Letters No.165 and 170, 18th and 27th January 1859, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.

notice for accepting requests for remission. The provincial officials highlighted this peculiar absence of request for remission with an example,

> During the last season but one there was a total failure of the *Salee dhan* crop, but though the Ryots were greatly distressed all the revenue was paid in and no remission was applied for on the grounds of loss of crops except when there has been an erroneous assessment, or lands been inundated by the river or carried off after unforeseen causes – when it had been deemed just and reasonable and for which remission is invariably solicited.[16]

Explaining the net "heavy decrease" of Rs.10,343 in land revenue assessment in the year 1853-54 over the previous year's revenue in Kamrup, the Commissioner attributed this mainly due to "Decrease by resignation [and] encroachment of rivers and destruction of lands by inundation", which was shown as the cause for the government's loss of Rs.11,371. As reported by Jenkins,

> The decrease is chiefly owing to the falling off in the quantity of land caused by the destruction of various rivers, the loss from this source alone in 5 years which is the longest period any of the leases had to run, amounting to 9447 poorahs of land and which decrease has nearly all taken place in the central division of this district. There is also a large quantity of land resigned by the ryots amounting to 9111 poorahs against 4015 poorahs newly taken up. The large number of *istuffas* and the small extent of new cultivation the collector observes is attributable to the great mortality amongst the people from cholera and death of cattle which prevailed for upwards of 2 years throughout the whole district, both of which causes when taken into consideration will be quite enough to account for the unfavourable result shown above.[17]

But things were to change within fifty years, giving no more alibi of an absence of remission requests to the state. News of heavy floods in the Brahmaputra Valley was reported in July 1900. The Sub-divisional Officer of Barpeta wrote on 24 July

[16] Ibid.
[17] From Francis Jenkins, Commissioner of Assam, to the Board of Revenue for Lower Provinces, Fort William, Letter No.165, Series V: Letters Issued to the Board of Revenue for the Lower Provinces, 1854, ASA.

that "the flood is rising alarmingly from yesterday. It has gone 2 feet above the last year's level, and is still rising. The treasury and jail have been placed on boats. The records have also been placed in boats, as far as practicable. The people are in a terrible state."[18] Reports of heavy floods from other western and central Asom regions like Kamrup and Dhuburi started to come in as well.[19] Subsequent reports from Barpeta noted that

> There is great distress in the town and surrounding villages, and people are passing days and nights on the roofs of their houses, and on boats, improvised rafts, and are in constant fear of being swept away by the current. Lots of cattle have been floated away, and many granaries are under water. I have heard of several deaths of children by falling into the water. As all communication is stopped with mofussil, I cannot form any idea of the loss of life and property in the subdivision yet.[20]

It was further reported that the condition of the people was getting worse by every hour. The price of rice and other essential provisions had shot up, and even on high price rice was not available in the market.[21] Four deaths from drowning were reported from Barpeta.[22] The Deputy Commissioner who visited the flooded parts of Kamrup, which was said to be the highest Brahmaputra flood ever recorded by the gauge at Guwahati, noted that the people were "in very great distress, and still graver discomfort". Everywhere he was met with by the cry "We have lost everything, we have nothing to eat!" from the people stranded on the roofs of houses or on rafts of drift timber, or on bamboo *machans* or temporary platforms. Nearly everyone in the region lost their granaries, and the

[18] From the Munshi Mahib Uddin Ahmed, Subdivisional Officer, Barpeta to the Deputy Commissioner of Kamrup, No.312, Barpeta 24th July 1900, Nos.24-104, Home-A, January 1901, Assam Secretariat Proceedings, ASA.

[19] From Secretary to the Chief Commissioner, Assam, Shillong to the Secretary to Government of India, Home Department, Simla, Telegram No.6731G, 30th July 1900, Nos.24-104, Home-A, Assam Secretariat Proceedings, January 1901, ASA.

[20] From the Munshi Mahib Uddin Ahmed, Subdivisional Officer, Barpeta, to the Deputy Commissioner of Kamrup, No.315, Barpeta 26th July 1900, Nos.24-104, Home-A, January 1901, Assam Secretariat Proceedings, ASA.

[21] From the Munshi Mahib Uddin Ahmed, Subdivisional Officer, Barpeta, to the Deputy Commissioner of Kamrup, No.320, Barpeta 27th July 1900, Nos.24-104, January 1901, Assam Secretariat Proceedings, Home-A, ASA.

[22] From the F. E. Jackson, Officiating Deputy Commissioner of Goalpara, to the Commissioner of the Assam Valley Districts, No.1241G–XX-11, Dhubri 26th July 1900, Nos.24-104, Home-A, Assam Secretariat Proceedings, January 1901, ASA.

officer suggested that it would be necessary to import rice either Goalpara or Noasali to meet the scarcity. With a view to address the temporary but acute scarcity, he held a meeting of all the merchants in the town and arranged that the *kayas* should import rice and make it available to the villagers at a pre-fixed rate. On the way back he stopped over at Baghbar Hill, where he noticed that a number of people had sought refuge from the floods of the last three years, and had already built 30 to 40 houses.[23]

Since colonial authorities considered Asom's peasants to be assessed lightly, demand for remission of revenue was not generally accepted for one, or even two bad years of cultivation, since there were "plenty of other years makes up for the deficiency."[24] On the basis of this reasoning, the Director of the Agriculture Department decided that no remission after the floods of 1898 was necessary for the Nowgong *raiyats*, nor any other extensive measures of relief called for. Such conclusions, or differences of opinion, did little to recognise when the peasants were in dire need of flood relief measures, including remittance of revenue.

In Kamrup district the officer witnessed "boat loads of people" going to Howli in search of land. In Dakhin Sarubangsar *mauza*, great damage to the peasant's granaries and to the standing *ahu* crop was reported by the *tehsildar*. The paddy was lost not so much by it being washed away, but for being under water for several days. This destruction gave the "finishing touch to what the earthquake [of 1897] commenced in this mauza", and the Deputy Commissioner urged that the government must prepare itself for "a heavy loss of revenue both in Dakhin Sarubangsar, but also the other riparian mauzas."[25] The inspection of Barpeta and "the effect there of the highest Brahmaputra flood on record" revealed that

> Luckily, owing to the people of Barpeta being used to floods, although on all hands it was admitted that no such flood as the present one had been previously

[23] Tour Diary of Captain P. R. T. Gurdon, Deputy Commissioner, Kamrup, 4th August 1900, Nos.24-104, Home-A, January 1901, Assam Secretariat Proceedings, ASA.
[24] 'Resolution', *Extract from the Proceedings of the Chief Commissioner of Assam in the General Department*, No. 2869R, 3rd June 1898, Assam Secretariat Proceedings, May 1898, ASA.
[25] Ibid.

> experienced, the loss of life was small… Most of the Barpetias have boats of their own, so that it is not necessary to help them with boats.[26]

Those who had boats moved to higher and safer places for shelter, while those that did not had constructed *changs* or elevated platforms and rafts to tide over the floods. Cattle had been washed away by the floods, and it was feared that many more would subsequently die either from disease or from want of food that usually followed heavy and damaging inundations. In Goalpara, the impact of floods were said to be very severe in 1900, the highest ever known in the district.[27] The local office of the PWD prepared a report on damages done, and calculated that the flood that year alone, being an extraordinary one, did more losses to government revenue as well as suffering to the people than all the floods since 1878 put together.

The Khanajan River that ran from the Dipar *bil* into the Brahmaputra River flowed in opposite direction during that flood, i.e., the Brahmaputra flowed into the *bil*. The bridge over the said river was only a foot above the water-level. An opening of about 10 feet wide and 2 feet 6 inches deep was discovered on the high road leading up to the bridge, through which river water was running into the adjacent *bils*. On examining the opening minutely, the government supervisor concluded that the road had been cut by some "mischievous men" from the nearby villages in order to channel the river's floodwaters to run into the *bil*.[28] The supervising officer went down to the villages situated between the road and the river bank to ascertain the reasons for this act of cutting the road by the villagers, a "crime" under the colonial law. The bank of the river was much higher than the country between the bank and the road. Therefore, as soon as the river overflowed the bank, there was a rush of water towards the road. The level of water on the right-hand side of the road was found to be higher than that on the

[26] From Captain P. R. T. Gurdon, Deputy Commissioner of Kamrup, to the Commissioner of the Assam Valley Districts, No.1516, Gauhati 4th August 1900, Nos.24-104, Home-A, Assam Secretariat Proceedings, January 1901, ASA.

[27] From F. E. Jackson, Chief Commissioner of Goalpara to the Commissioner of the Assam Valley Districts, No.1413G.–XX-11, Dhubri 12th August 1900, Nos.24-104, Home-A, January 1901, Assam Secretariat Proceedings, ASA.

[28] Report by Public Works Department Subdivisional Officer on the Damage done by the Flood of July 1900, 2nd August 1900, Nos.24-104, Home-A, January 1901, Assam Secretariat Proceedings, ASA.

left due to insufficient waterway of the bridges to drain off river water through them. The bridges were constructed only to carry off normal rainwater, and not the waters of high floods. In the rainy season the water of the *bil* easily passed through into the river. But this time round, the situation was extraordinary.

> The villagers are in a most miserable condition: they have lost all the paddy they had in stock, and vegetables in the gardens, ripe paddy (*ahu*) in the field have been destroyed, and transplanted green paddy (*sali*) has been badly damaged. *Under the circumstances, the villagers were naturally led to believe that the water would subside as soon as the water had an opening to run into the field*. It was a mistake on their part. I tried to trace out the men who have done the damage to the road, but to no effect.[29]

This act was by no means an exceptional one. The cutting of embankments – considered 'illegal' and a criminal offense according to the provisions of the Bengal Embankments Act – was very commonly resorted to by villagers to drain out trapped floodwaters from their area.

Destructive floods induced migration as well. A large number of flood-affected people moved to safer areas in search of land in the first decade of the twentieth century, not all of which was temporary. The district officer of Goalpara in his letter to the higher officials in Shillong wrote that the people in the western extremities of the district were worst affected from the abnormally intense floods of 1900. Moreover,

> Some of the villagers near Patamari are reported to have migrated to Rungpur… From Bilasipara thana it is reported that 50 villages went under water. The people of 4 villages migrated to higher land. The jurisdiction of South Salmara and Lakhipur thanas and Mankachar outpost suffered most heavily. From South Salmara it is reported that about one-eighth of the population migrated to the Bilasipara thana and to the Garo Hills. There has been a constant migration from

[29] Ibid.

> South Salmara since the earthquake [of 1897] owing to the general subsidence of the land, and I believe the greater part of this migration to be permanent.[30]

The "question of advances and revenue-free terms to settlers in new localities" had to be seriously considered by the colonial authorities due to the displacement of people resulting from high floods, particularly after the 1897 earthquake. "The mauza of *Pub Chamaria* is now reported to be practically deserted, owing to the constant floods after the earthquake."[31] In addition, the loss of more than 2,000 cattle from amongst the already diminished stock in the inundated tracts of the Barpeta subdivision caused great hardship to the cultivators of Barpeta. As its immediate fallout, less land than usual was taken up for cultivation that year. The area under mustard cultivation also shrunk in Goalpara drastically in the cold season of 1900, indicating a reduction in the land under *faringati* or fluctuating cultivation on the riverine tract of the Brahmaputra. Moreover, owing to the scarcity of plough cattle, people who migrated to newer and higher lands in Barpeta subdivision were unable to open up new land for cultivation. The greater portion of *ahu*, which was the main staple crop in a large area of Barpeta, was lost, the damage being greatest in the riparian tracts.[32]

On the impact of the same wave of floods in Nowgong district, the Deputy Commissioner observed that the damage to crops was principally in the *chapori mauzas*, where about 25 percent of the standing *ahu* crop and from 50 to 75 percent of the *bao* was destroyed. But highlighting the beneficial effects of the floods, it was also found that a deposit of silt over the *chapori mauzas* has been left by the floods. Were no more floods to occur that year, it was expected that

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[30] From F. E. Jackson, Officiating Deputy Commissioner of Goalpara, to the Commissioner of Assam Valley Districts, No.1562G – X-11, Dhubri 20th August 1900, Nos.24-104, Home-A, January 1901, Assam Secretariat Proceedings, ASA.

[31] P. R. T. Gurdon, Deputy Commissioner of Kamrup, to the Commissioner of the Assam Valley Districts, No.1986, Gauhati 12th September 1900, Nos.24-104, Home-A, January 1901, Assam Secretariat Proceedings, ASA.

[32] P. R. T. Gurdon, Deputy Commissioner of Kamrup, to the Commissioner of the Assam Valley Districts, No.1986, Gauhati 12th September 1900, Nos.24-104, Home-A, January 1901, Assam Secretariat Proceedings, ASA. Emphasis added. The total no. of cattle in Barpeta subdivision was 129,660 out of which 1,925 were reportedly lost in the 1900 floods. In the whole of Kamrup district this loss was 3,030 cattle out of 642,312.

there was an excellent prospect of a good mustard harvest in the ensuing cold season.[33]

A significant section of cultivators in Kamrup district too were migrating after relinquishing and abandoning their agricultural lands due to the deposition of silt by floods, especially after the earthquake of 1897. The Deputy Commissioner of the district in his tour-diary noted that at a place called Amoni in Nalbari *tahsil* and on the edge of the flooded country, one could observe the few remaining houses of the former villages, most of the inhabitants of which had moved to Baroma.[34] As a result, while the area under full-rent paying cultivated land (*khiraj*) sharply decreased in the former, the latter saw an increase in the period due to the transfer of the flood-affected population, as indicated by the following table. However, only a third of the people thus migrating from Nalbari settled in Baroma, the rest moving to other place.

Changes in the *khiraj* area (in bighas)[35]

Tahsil	1897-98	1898-99	1899-1900	1900-1901
Nalbari	152,589	137,806	135,284	128,808
Baroma	107,676	111,302	112,862	113,271

On the other hand, *raiyats* of Nalbari who were still holding on to their flood-damaged and sand-covered lands were doing so in expectation of a revision of the land revenue assessment by the government, and also in the hope of improvement of the soil. In some other cases, the peasants could not resign their land and take up new ones owing to their inability to pay the revenue arrears for the three years immediately after the earthquake of 1897.[36] According to the Deputy Commissioner,

[33] From J. F. Grunning, Deputy Commissioner of Nowgong to the Director, Department of Land Records and Agriculture, Assam, No.994R, 3rd September 1900, Nos.24-104, Home-A, January 1901, Assam Secretariat Proceedings, ASA.
[34] Tour Diary of H. C. Barnes, Deputy Commissioner of Kamrup, in Memo by the Officiating Commissioner of the Assam Valley Districts, No.1645L.R.,Gauhati, 4th July, 1901, Rev.-A, July 1901, Nos.29-50, Assam Secretariat Proceedings, ASA.
[35] Ibid.
[36] Ibid.

> *the bulk of the land resigned will be found in the flooded area*. The damaged land is retained, as it will no doubt very gradually become good, or may do so… *it is to the interest of Government to keep them on these damaged lands,* because continuous cultivation will help to improve the land by adding other ingredients to the land. I think, on grounds of policy alone, *they should be encouraged to stick to their land*.[37]

The response of the government to the frequent requests by cultivators for fresh land, remission of revenue, relief measures, etc. to cope with the aftermath of the earthquake and floods of 1897, was to point towards the 'wasteland' available for cultivation in the Valley. Uncultivated land was considered to be so abundant that *raiyats* were legally free to take up land there by relinquishing their land which was seriously damaged. There were, however, certain regions where population was dense and the demand for land considerable. In such regions cultivators were generally averse to relinquishing their holdings, even when they were in difficulty of paying full *rupit* rates charged on the land rendered temporarily unfit for cultivation of transplanted rice. The government's policy was also to discourage the peasants from abandoning their permanently cultivated *rupit* lands. Thus, as "It is the policy of Administration to encourage the development of a permanent interest in their holdings on the part of settlement-holders", the Chief Commissioner directed that the assessment of *rupit* lands held under periodic lease at full rates and damaged by sand deposits resulting from the earthquake and floods of 1897 in the districts of Kamrup, Nowgong and Darrang, and which had not been relinquished, would be reduced to a lower *faringati* rates for the current settlement terms.[38]

But it was found in 1898 that the distress of the peasants in a famine-like situation in Patidarrang, Rangia and Nalbari *tahsils* of Kamrup was precipitated by a high and unaltered revenue demand after the earthquake of 1897 and subsequent floods, which extensively damaged agricultural land or threw it out of cultivation. Near Nalbari, *ahu* had been planted on large areas classed as first

[37] Ibid. Emphasis added.
[38] 'Resolution', *Extract from the Proceedings of the Chief Commissioner of Assam in the General Department*, No. 2869R, 3rd June 1898, Assam Secretariat Proceedings, May 1898, ASA.

class *rupit* land after the sand deposits brought by the rivers made *sali* cultivation impossible or unproductive. In order to keep the *raiyats* on the damaged land and prevent large scale migration after the floods immediately succeeding the 1897 earthquake, the government decided – keeping in mind its own interest – that it had to not only reclassify the villages in the flooded tracts, but also reclassify the lands within the villages.

Orders were subsequently passed to this effect. However, it transpired that in the districts of Kamrup and Nowgong as well as in the Mangaldai subdivision of the Darrang district, the decision of assessing *rupit* lands damaged from the earthquake and floods of 1897 at *faringati* rates for the remainder of the settlement term was not put in practice by the local officials.[39] Admittedly, the Chief Commissioner of Assam was "at a loss to understand why effect was not given long ere this to the orders."[40] Thus, according to their own admission, the nominal flood-relief measures such as remittance of land revenue or reclassification of land were not carried out on the ground even after orders to this effect. As the secretary to the Chief Commissioner of Assam remarked,

> It would not surprise the Chief Commissioner to learn that *some of the distress now reported from North Kamrup is attributable to the neglect of the local officers to comply with his clear instructions passed more than three years ago for the relief and assistance of the government tenantry residing within the distressed area*.[41]

It was a clear admission that the colonial state's policies abated the conditions for the distress of the peasantry. It showed little flexibility in readjusting the fiscal demands for the peasantry who suffered losses due to floods. For the colonial bureaucracy it was much easier to present the floods as a 'natural' and inevitable calamity that was a factor causing the prevailing agrarian distress.

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[39] From Secretary to the Chief Commissioner of Assam, to the Officiating Commissioner of the Assam valley Districts, No.1199 Misc.-5204G, Shillong 8th July, 1909, Rev. A, July 1901, Nos.29-50, Assam Secretariat Proceedings, ASA.

[40] Ibid.

[41] Ibid, emphasis added.

Much like the floods of 1900, the damage done by the one in 1916 was also recorded by the colonial state as 'abnormal', and with the standing crops totally destroyed in many areas of the river valleys, the *raiyats* were in despair. In such conditions, the extraction of revenue from the destitute peasantry became a major difficulty for the state. There were requests and demands for the suspension, and even the total remission of land revenue, given the widespread loss of crops. Hopes were expressed that the state would provide relief and agricultural loans for future cultivation.

A deputation from the 'gentlemen' of Sibsagar to the government that year requested for additional agricultural loans and gratuitous relief, suspension of repayment of the loans to the distressed, repairing, raising, and extending the bunds, and the need for spurs on the Dikhow river for protecting the town of Sibsagar from erosion.[42] Similarly, a petition by Manuram *gaonbura* [village headman] on behalf of the peasants of Betbari mauza, Sibsagar district, reported that the *raiyats* of villages Akhoiphutia and Joyrapar in Betbari were "partly starving on account of not getting proper crops in the fields since the last year. The fields are fully under water up to date…*The Desang bund causes great loss every year to the raiyats and may be set up properly*."[43] The *gaonbura*'s plea was for remission of revenue for that year, as the peasantry was said to be in very great distress. Kuarpur and Banmukh *raiyats* and many others also prayed for remission of revenue due to the damage of crops by the Brahmaputra floods that year.

Untimely and excessive floods coupled with lack of adequate and timely revenue remissions affected all classes of the peasantry in the first half of the twentieth century. However the distress to the poor peasants and even the middle peasants was aggravated to a greater extent than the rich due to the relatively higher incidence revenue demands on the former. It forced a section of them to starve or beg after extracting the bare minimum of grain or money they possessed as

[42] From G. C. Phukan, Sibsagar to the Subdivisional Officer, Sibsagar 13th July 1916, Rev.-A, August 1917, Nos.118-137, Assam Secretariat Proceedings, ASA.

[43] Petition of Manuram Gaonbura and other Raiyats of Batbari Mauza to the Chief Secretary to the Commissioner of Assam, Sibsagar 14 July 1916, Rev.-A, August 1917, Nos.118-137, Assam Secretariat Proceedings, ASA.

land revenue even after high floods had damaged their crops, the most crucial means of their subsistence. This acute distress of the poor peasantry was reflected in an impassioned petition by Bhogram Barua and other peasants of Banmukh in Sibsagar to the Chief Commissioner of Assam in July 1916:

> *We have been suffering from famine continually for two years.* In the year before last we could not cultivate our fields in due times for want of rain and the paddy which was transplanted in the latter half of the season was destroyed by harmful insects and worms. So we could earn food only for six months. *For the remaining six months of the last year most of us lived upon begging.* At the beginning of the last year our *ahu* cultivation was destroyed by the floods of the Brahmaputra and the last floods in the rainy season destroyed our seed plants and paddy that was transplanted in the first half of the transplanting season. *As Banmukh is a low-levelled place and as it was over-flooded many times by the high flood of the Brahmaputra most of our cattle died for want of grass. So we were reduced to a miserable condition, losing our cattle and seed plants.* Still we tried thrice to transplant our paddy by buying seed plants from distant places but [to] no effect. All of them were damaged by the last floods. The portion which was left by the floods was also destroyed by the destructive worms. So we could earn nothing for the year. And the paddy which was in the barn of the middle class raiyats was washed by that unfortunate high floods. *In this way we lost both, what was in hand and what was in bush.* Now we are suffering much for want of regular food.
>
> This being the case those who can afford money could manage to live from hand to mouth by buying corn from distant places and the rest lived upon begging… *The little amount of wealth which was in our hand came to an end within two or three months. Then we managed to live by selling and mortgaging our valuable properties. And some of the poorest people who had no money and properties and could not manage to get alms lived upon wild fruits. Some of them died of starvation in the month of Aswina and Kartika*. Survivors maintain their lives by taking two or three meals in a week. Thus being to a miserable condition we applied to the benign Government to lend some money in order to buy foods, cattle and seed plants. We have heard also that the benign Government has granted some fifteen thousand rupees to relive the poor subjects from the distress. About two thousand rupees were given to us each from Rs.5 to Rs.10 in order to buy seed plants only. But we are sorry to inform that distribution was

> also not properly done. *Many who really deserved could not get a share through the recommendation of the headman of the village and the mandal, some middle class people got a share instead of the poor.*[44]

The commissioner was reminded by the petitioners that when the officer visited Sibsagar the peasants applied for remission of revenue for the year 1915-16. The commissioner personally visited some of the paddy fields damaged by floods and verbally ordered at that time for revenue remission of those lands where the damage was more than half the total crop. The circle sub-deputy collector, a native officer, was ordered to inspect and report on the interior flood-affected areas. But the peasants complained that

> he being a quite young and inconsiderate man reported those land where there were one or two stalks of paddy as growing paddy at half-rate, and where there was no paddy at all, as growing at the rate of one-fourth and so on. Thus he reported quite falsely. *He also reported some of the poorest people as middle class people and would be able to pay revenue*… According to the report of the Sub-deputy collector some of the people are getting remittance of two or three rupees of taxes but in this also some of the poorest people who had no paddy at all are getting no remittance at all. *At present the mauzadar is collecting revenue by force, sending his muharrirs and peon and thus gives much trouble by taking their things by force*.

It was clear that in the first decades of the twentieth century the requests for flood relief in various forms came thick and fast to the colonial government, a remarkable change in the situation from the time when such pleas were said to be rare. Arguably, the peasantry was feeling the impact of floods more than they did in the previous century. The needs of the subjects had changed, but not that of the state, which continued to hold the financial considerations to be of paramount importance.

[44] Petition of Bhogram Barua and other Raiyats of Banmukh to the Chief Secretary to the Commissioner of Assam, Sibsagar 14th July 1916, Rev.-A, August 1917, Nos.118-137, Assam Secretariat Proceedings, ASA, emphasis added.

Floods as Calamity

The peasant's request for agricultural loans or gratuitous relief which could be used to buy food, cattle and seedlings was often turned down by local officials. Most of the distressed peasants were in urgent need of money, since after destructive floods they had little savings in the form of grain, foodstuff or fodder left, and had to buy them at exorbitant prices from the market where traders generally used the opportunity of high demands and short supply to make a quick profit. The demand for loans and gratuitous distribution of funds was the highest in conditions when the *raiyats* had already exhausted their main source of borrowing - the *kayas* or other village money-lenders.

Wide-scale demands for remittance of revenue forced the provincial bureaucracy to lay down well-defined rules and procedures of providing relief to distressed cultivators by way of revenue suspension and remittance, which was quite ad-hoc and arbitrary till 1916. As the chief Commissioner's note of that year read, "it will have to be considered whether the rule should not be amplified so as to lay down the principles clearly, as is done in the case of local calamities."[45] It was probably not done so far, he presumed, "because *calamities on an extensive scale had not occurred in this province as they have, we may perhaps take it, occurred in recent years.*"[46] As the colonial state saw it, floods at the turn of the century had taken the shape of major calamities, requiring a new kind of response.

As a result, while ordering a suspension of revenue collection in the affected areas, the question of modifying the 'vague' rules of remittance and suspension in the Assam Land Revenue Manual –first brought into effect in Asom in 1906 and drafted by the then Chief Commissioner Bampfylde Fuller– was decided to be reviewed and revised in 1917. It was decided that "Raiyats should not be called upon to pay till they are in a position to do so from the sale of their crops or other produce, and if next cold weather they are unable to pay the current as well as the suspended revenue, the question of giving a further suspension will

[45] Note by Chief Commissioner of Assam, 24th November 1916, Rev.-A, August 1917, Nos.118-137, Assam Secretariat Proceedings, ASA.
[46] Ibid.

have to be considered."[47] However, the final settlement of the question went along the lines of policy set forth by the imperial government, whereby

> *the Government of India recognised that "elasticity" of collection was an exceptional act of grace,* as allowance is made for exceptional seasons by the suspension or remission of the demand which is due… *the system of suspensions and remissions is to be recognised as a measure purely of grace and not of right, to be exercised only on exceptional cases of calamity so severe as to justify and necessitate a relaxation of the settlement contract*… as a general rule, no suspended revenue should be collected until after one fair harvest subsequent to the failure has been reaped in the affected tract.[48]

In order to determine the nature of the distress to the subjects, the colonial state defined three kinds of 'calamities' eligible for remission or suspension of revenue. In the first category were the 'widespread Calamities', resulting from a general failure of rainfall or an earthquake or pestilence. Second was the 'local calamities' that included floods, along with hailstorm, blight, or ravages by insects which cause damage to a limited area and affect a particular harvest. In the third category, 'private calamities' such as fire, sickness or loss of cattle were to be included. After getting reports of widespread, local or private calamities, the Deputy Commissioner of a district was empowered to suspend the collection of revenue for the next installment. This was to be done after he satisfied himself that "the settlement-holders in any local area or any class of settlement-holders in such area cannot pay the next installment of land revenue from their own resources or without great hardship, but will be able to pay it subsequently in addition to the current Government demand if the succeeding harvest are normal."[49] In case of suspension, it was to be only a postponement of the revenue due on the settlement-holders, who were expected to pay the suspended revenue at a later date.

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[47] Note by B. C. Allen, Chief Secretary to the Chief Commissioner of Assam, 18th July 1916, Rev.-A, August 1917, Assam Secretariat Proceedings, Nos.118-137, ASA.

[48] Note, 16 November 1916, Assam Secretariat Proceedings, Rev.-A, August 1917, Nos.118-137, ASA, emphasis added.

[49] 'Notification by the Chief Commissioner of Assam', no.3490R, 20 July 1917, Assam Secretariat Proceedings, Revenue Department, Rev.-A, August 1917, Nos.118-137, File No.L-124R of 1916, ASA.

In case of more severe damages when according to the Deputy Commissioner it was "practically certain that it will not be possible to collect the revenue in full at a latter date even if fair harvest follow, without causing great hardship to the settlement-holders", he could order a suspension of revenue pending a detailed field-to-field enquiry. The enquiry was to ascertain the amount of remission necessary for each plot of land. According to the new rules, remission was to be allowed only if the damage caused by the calamity was of 8 *annas* (half the crop), or more. If the crop that remained undamaged by the calamity was between 6 to 8 *annas*, the remission would be 25 percent. If it was between 4 to 6 *annas* the revenue remitted would be up to 50 percent, and when only 4 *annas* of crop remained intact (¼ of the crop), a full or 100 percent remission could be granted.

While determining the extent of relief required through suspension or remission, the revenue officials were also directed to consider the "general circumstances of the village and the pitch of the assessment", along with the character of the crop. Thus it was suggested that in a 'prosperous' village with a low rate of assessment, remission might only be necessary in quite exceptional cases, while in a 'poor' village where the rate of assessment was comparatively high, more 'liberal' assessment might be considered.[50] Moreover, in case of the inundated tracts where floods emerged as the most frequent and common 'calamity' as per the government's definition, "two successive years of [crop] failure will justify liberal treatment." The general guideline thus evolved – in accordance with the directives of the Government of India – was to be flexible, at least in theory, if not more beneficial or 'liberal' for the peasants than earlier. The provincial government held that it had been quite 'generous' with reliefs in Asom so far, and that "we treat our people in the most favourable manner possible". But the new "principles laid down in the Government of India's Resolution would not apparently allow of our giving them more generous treatment."[51]

[50] Ibid.
[51] 'Note on the Rules for the Suspension and Remission of Village Revenue in Case of Local Calamity' by B. C. Allen, 23 November 1916, Lt. Col. P. R. T. Gurdon, Commissioner of Assam Valley Districts to Secretary to the Chief Commissioner of Assam, No.613R, Gauhati 21 October 1916, Assam Secretariat Proceedings, Revenue Department, Rev.-A, August 1917, Nos.118-137, File No.L-124R of 1916, ASA.

The relief mechanism through revenue relaxation was thus put in place, indicating an acknowledgment of repeated floods increasingly becoming injurious to crops and to state's revenue. The large and growing number of destitute peasants without the basic means of production even for bare subsistence raised frequent claims that the state intervene in providing direct credit to distressed cultivators, not for doing business like the *kayas* did, but to ensure the survival of the most oppressed of the peasant classes in the Brahmaputra valley. But such demands were not only confined to the peasants of the Valley alone. During the floods of the Brahmaputra that inundated its *chars* in Lakhimpur district in the vicinity of Dibrugarh in July 1915, "Graziers from all the important chars on the Brahmaputra have been into petition for reduction of grazing fees on the ground of loss of cattle."[52]

The Commissioner of Assam Valley Division declared the suspension of revenue collection after the abnormal floods that inundated Lakhimpur in July 1921, since the Dhakuakhana and Gohaingaon *mauzadars* were unable to collect the revenue of Rs.9,000 to Rs.10,000 due to the first wave of floods that year. However, the government considered that the *mauzadars* were lax in their duty, as "the outstanding revenue should have been paid long before the floods occurred, and theoretically, the flood in June should not have affected the question in any way."[53] Moreover, government officials concluded agreements – both formal and informal – with the *Kaya* or Marwari traders to supply rice and *dhan* (unhusked rice) to the affected villages which had lost their crops, granaries and other sources of food, and were thereby in scarcity. This practice had precedence in the past, and was to continue in the future. This was in spite of the official's knowledge that the *kayas* took full advantage of the distress and scarcity of the villagers, hiked the prices of foodstuff and engaged in profiteering,

[52] From L. O. Clarke, Deputy Commissioner of Lakhimpur to the Commissioner of Assam Valley Districts, No.897R, Dibrugarh 27 July 1915, "Report on the Floods in the Lakhimpur District in July 1915", Assam Secretariat Proceedings, Revenue Department, Rev.-B, Nos.374-376, File No.F-25R, August 1915, ASA.

[53] From B. C. Allen, Commissioner of Assam Valley Division, to Chief Secretary to the Government of Assam, No.473R, Gauhati 13 August 1921, 'Flood in North Lakhimpur', Assam Secretariat Proceedings, Rev.-B, January 1922, Nos.110-123, ASA.

thereby increasing the distress in the process. This not only exacerbated the ongoing crisis of the peasants, but also created future distress, since a majority of the poor peasants did not have enough cash to buy rice or *dhan* from the *kayas* in the desperate months after the floods, and thereby were forced to sell their harvest in advance to receive grains in return.[54] The government admitted that "Local Kayas should not be allowed to profiteer and add to the distress by putting up prices", and mulled over a plan for distributing rice to the needy through government depots in 1921. Nothing however is known about its implementation.[55]

The floods of July 1921 also affected the peasants on the *chars* of Brahmaputra in Goalpara district. The district officer reported that such peasants were thrown into absolute destitution and were "thronging into Dhubri for assistance alleging want of food".[56] Though the district officers initially distributed Rs.3000 among the needy peasants under the provisions of the Agriculturalists' Loans Act of 1884, the number of applicants was found to be far in access to what could be catered to by that sum. The official in charge admitted that initially he hoped the distress to be limited on the *chars*, and hence applied for a moderate sum. However it was soon realised that "Nearly the whole of the Ashu [*ahu*] has gone and now we fear the Amon crop will be ruined… stocks of food in the villages are at a very low ebb and crowds of people are coming in for help".[57]

It was estimated that seven to eight hundred families needed immediate relief, each family requiring a loan of at least Rs.15 to Rs.25 according to their varying circumstances.[58] An amount of Rs.50,000 was soon requested for distribution as

[54] From S. Monies, Superintendent of Police, to Deputy Commissioner of Lakhimpur, Camp Guna Suti, 28 July 1921, 'Flood in North Lakhimpur', Assam Secretariat Proceedings, Rev.-B, January 1922, Nos.110-123, ASA.
[55] Ibid.
[56] From Lt. Col. A. Playfield, Deputy Commissioner of Goalpara, to the Commissioner of Assam Valley Division, No.782R, Dhubri 23 July 1921, "Flood in North Lakhimpur", File Nos. 110-123, Rev.- B, January 1922, Assam Secretariat Proceedings, Revenue Department, ASA.
[57] Ibid.
[58] Report of A. Rahaman, Subdivisional Officer, Goalpara, to the Deputy Commissioner, Goalpara, Goalpara 21 July 1921, "Flood in North Lakhimpur", File Nos. 110-123, Rev.- B, January 1922, Assam Secretariat Proceedings, Revenue Department, ASA.

agricultural loans under Rule 18 of the Act to tide over the crisis.[59] But the government was equally keen on the question of recovering the loans. Since the flood-affected people were tenants of different *zamindars* of Goalpara who supposedly paid nothing more than "a pepper-corn assessment" to the government, and along with the *jotdars* "receive the whole of the landlord's profit in the district", the government found it "only reasonable that they should bear the landlord's losses." It was also stipulated that the repayment of the loan should be the first charge upon the tenants. In case it was difficult or impossible for him to pay the loan and the rent together, the latter was to be sacrificed. Given this arrangement, no "wholesale remission of rents" was required, the government argued, as the rates were low and the land yielding multiple crops.[60]

Colonial officials every now and then conveyed the suspicion that the distress of the people due to floods, and the subsequent scarcity reported were generally exaggerated, and at times, simply simulated as if to trick the government to render some relief and mitigation measure. This suspicion of the native subject was amply demonstrated in the words of B. C. Allen, the Commissioner of Assam Valley Division, who visited the inundated Brahmaputra *chars* in Goalpara in 1921. Allen wrote,

> I visited the small Chur of Sadhu Basha. Conditions there were not very satisfactory; and one man whom I found lying down in the house may possibly have really been weak from want of food. He certainly looked emaciated. These people are however much more sophisticated than those round Chunari; as, in another house which I visited I found the mother lying on the floor surrounded by four children. As far as I could ascertain, none of them were very weak, nor did they show special signs of emaciation. I have little doubt that this scene was specially arranged for my benefit.[61]

[59] From Lt. Col. A. Playfield, Deputy Commissioner of Goalpara, Extract from File No. Rev/878/21, No.736R, Dhubri 20 July 1921, "Flood in North Lakhimpur", File Nos. 110-123, Rev.- B, January 1922, Assam Secretariat Proceedings, Revenue Department, ASA.
[60] 'Note on the Inspection of Flood Relief Works in Goalpara' by B. C. Allen, Commissioner of Assam Valley Division, 26 September 1921, "Flood in North Lakhimpur", File Nos. 110-123, Rev.- B, January 1922, Assam Secretariat Proceedings, Revenue Department, ASA.
[61] Ibid.

The colonial state responded to the severe floods of July 1927 in Lakhimpur district with a limited amount of rescue operations as well as distribution of rice. Once the initial 20 maunds of rice sent – no more than 10 gunny bags – got exhausted, another 75 maunds were sent for the distressed people. The Deputy Commissioner reported that "The *chapris* opposite to Dibrugarh which were occupied mainly by Nadials have been evacuated. The people were quite destitute and I have arranged to distribute free rice to them until they are able to earn their living again."[62] Agricultural loans amounting to Rs.8500, and still smaller amounts of gratuitous relief of Rs.500, were distributed.

During enquiries, the district authorities were confronted with a range of demands made by the affected villagers. This included the grant of timber for boats free of royalty. The government was only ready to allow the free access of drift-timber in the Brahmaputra, to be collected and used for making dug-outs without any payment of royalty. The government assured that free passes would be distributed on a "reasonable scale" to those villages which did not have access to drift-timber.[63] There was also the demand to repair the Dibru-Sadiya Railway bund from Dibrugarh town to the steamer *ghat* at Bogibil. This demand was made in 1926 or the previous year too, but the government did not accede to it due to the objections made by the railway company. Demand was also raised for the construction of a two-mile long protective embankment in Jamira *mauza*.

In addition, while some villagers requested for agricultural loans, one village "asked for the disforestation of the Charaihagi Forest Reserve to enable them to migrate there."[64] The demand for a relief fund and free distribution of seeds for winter crops were made as well, but were rejected by the district officials as unnecessary. Applications for remission of revenue were also made in large

[62] From F. A. S. Thomas, Officiating Deputy Commissioner, Lakhimpur, to the Chief Secretary to the Government of Assam, No.2662G, Dibrugarh 11 July 1927, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Rev.-B, September 1928, Nos.1184-1246, ASA.
[63] From F. A. S. Thomas, Officiating deputy Commissioner, Lakhimpur, to the Commissioner of the Assam Valley Division, No.4008R, Dibrugarh 17 August 1927, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Rev.-B, September 1928, Nos.1184-1246, ASA.
[64] Ibid.

numbers to the state in Lakhimpur. However, even though the floods in 1927 admittedly caused considerable damage to crops, seedlings, granaries and cattle, the colonial authorities found "no case for remission or suspension". The government expected that

> When the time approaches for reaping the *sali* crop however, and the full effects of the flood are seen, I think it probable, taking into account the inferior crops of the last two years that a case will be made out not only for remission of the current revenue, but also in many cases of the Agricultural loans granted as flood relief and (earlier in the year) for replacement of cattle lost in the epidemic.[65]

The response of the Deputy Commissioner indeed made the impact of that year's flood appear less damaging than in reality. This was made apparent by the field report filed by the Sib-divisional Officer of North Lakhimpur after visiting the flood-affected Dhakuakhana and Gohaingaon *mauzas*. He considered it "a very pitiable sight to see the depradations", when it was found that "in about 90 percent cases the *changs* [raised platforms] of the granaries had gone under water [and] in all cases the water was about half to one cubit above the *chang*."[66] The result was that the lowest layers of the paddy in stock in all the granaries got rotten and "became completely unfit for human consumption." It was also "abundantly clear" to the officer that about 90 percent of the *raiyats* had been hit by the floods, including the villages of the Mishing community.

The conclusion of the visit was that "A most difficult and critical time is awaiting the rayots of Dhakuakhana and Gohaingaon mauzas, and as most of them have got no money to buy rice or paddy they will have to be financed substantially by us to help them out of this calamity."[67] The government, rather than accepting the appeals for remission, preferred subsequently to suspend the collection of land revenue for the time-being. Requests for remission of revenue were

[65] Ibid.
[66] From A. Rahman, Sub-divisional Officer, North Lakhimpur, to the Deputy Commissioner of Lakhimpur, No.3031D, 3 August 1927, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Rev.-B, September 1928, Nos.1184-1246, ASA.
[67] Ibid.

favourably considered on case of only four landholders. Setting aside the recommendation by the district officers in Lakhimpur for remission of land revenue of a few villages, the Government of Assam replied, "it may be preferable to suspend rather than to remit revenue altogether. It seems individuous to make the tea garden coolies…pay because they can earn wages in the tea gardens, but to remit payment of land revenue in the case of others who are apparently too lazy to work."[68] The old colonial stereotype of the 'lazy native' was resurrected to justify a widely demanded remission of revenue, the burden of which made the impact of flood more severe and the flood-hit poor peasants more impoverished.

During the floods of 1927, the most serious distress in Lakhimpur was reported from Burisuti Dum-gaon – a Kaivartta village –but the "distress in their case is largely due to a cholera epidemic which had carried off many of the earning members of families of the village, and has also prevented them from selling their fish."[69] Also affected were the Telahi and Kamalabaria *mauzas* of Lakhimpur on the north bank of the Brahmaputra. The government enquiries however found that the distress of the peasants was not only or entirely because of the floods, but rather a combination of socio-economic factors coupled with floods made a serious impact. As the Sub-deputy Collector of Ranganadi revenue circle wrote in his enquiry report,

> What I have gathered during my tour in the villages is that the present condition [of] the ryots is not at all due to the recent flood but it has been of gradual development since the last year and it has come to an acute stage at present. On account of insufficient rainfall the last winter crop was not such as it should be and as a result the amount of paddy in stock ran short 3 months ago, but this want was partially made good by the Ahu crop which the ryots cultivated on a

[68] From Secretary to the Government of Assam to the Commissioner of Assam Valley Division, No.3295R, Shillong 10 November 1927, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Rev.-B, September 1928, Nos.1184-1246, ASA.

[69] From F. A. S. Thomas, Officiating Deputy Commissioner, Lakhimpur, to the Commissioner of Assam Valley Division, No. 5064R, Dibrugarh 31 October 1927, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Rev.-B, September 1928, Nos.1184-1246, ASA.

> very small scale. The Ahu crop thus saved the people from utter wants and privation for the last two months and at present they have come to such a situation where they are utterly confused to find out a means to save their very existence. The Marwaries and other neighbours who formerly helped these people with loan or paddy are now totally refusing to help them in any shape and the only means left to these ill-fated ryots is to approach the benign government for agricultural loan to save their existence for two months.[70]

It was clear even to the colonial officials that floods in itself hardly took the shape of destructive calamities. It was the existence of adverse social conditions of existence that put the sustenance of life and livelihood for the weaker classes in difficulty. But when floods of increasing intensity in the first half of twentieth century forced the colonial state to initiate enquiries into the causes of floods, the priority of 'natural' factors were stressed upon over and above the 'social' factors.

Enquiring into the Causes of Floods

> *It is therefore to the hills that we must go if we wish to control floods.*[71]

Floods, in both their beneficial and destructive forms, were not new to the Brahmaputra Valley. As early as in 1829, Captain Rutherford came to know of disputes between the officials of the Bhutan kingdom and the *zamindars* of the British territory while visiting the Bhutanese-British border in the Duars for conducting surveys under orders of David Scott. Rutherford saw villages which he considered to be 'ravaged' by floods.

> I have proceeded in concert with these people (I summoned the oldest inhabitants of that and adjacent villages…) to the eastern point of the boundary

[70] From K. B. Nandi, Sub-deputy Collector, Lakhimpur, to the Commissioner, Assam Valley Division, 13 September 1927, 'Remission of Revenue Consequent on Flood in the Brahmaputra Valley (Flood in Lakhimpur)', Assam Secretariat Proceedings, Rev.-B, September 1928, Nos.1184-1246, ASA.

[71] *Note on Floods in the Surma Valley, Assam, their Causes and Remedies*, by F. O. Lechmere-Oertel, Chief Engineer, Public Works Department, Shillong 6th November 1917, Nos.1-62, Rev.-A, Assam Secretariat Proceedings, June 1918, ASA.

> on the Bur Nuddee [trans. Big River], for which, as the marks of Gohay Kamlar Allie, had been obliterated from the effects of the overflowing of that river, I was necessarily entirely dependent on the memories of these people for the correctness of my assumption… you enter the Bijalee Pergunaah and Karadooree lands, and ascend the Dea river, until the end of Oniahuttee village – *I should apprehend great changes taking place in this vicinity, even to the extent of loss of some of the villages from the ravages committed by the river.*[72]

However, even till the beginning of the twentieth century, floods were generally considered to be of 'ordinary' and 'local' nature that rarely caused widespread destruction and loss. There were many reasons for this. As B. C. Allen noted in 1905, "Darrang suffers little from destructive storms and floods. The Brahmaputra and many of its tributaries occasionally overflow their banks, but *the area subject to inundation is well known, and the villagers do not attempt to cultivate anything more than summer rice or cold weather crops in these flooded tracts*."[73]

But it was not uncommon to find colonial officials lamenting the losses caused to the exchequer by floods. Alarmed by a series of high floods in Brahmaputra and Surma Valleys, concerted efforts were undertaken at studying the floods of the rivers in the early twentieth century Asom. The 'abnormally' high floods of October 1916 affected both the Brahmaputra and Barak valleys, but particularly the latter, raising demands in the Assam Legislative Assembly for a thorough scientific investigation of the causes of the annual floods that visited Asom. The colonial government did not deem it necessary to systematically and seriously collect and maintain flood-related data for the province till that time, but now instructions were sent in the context of the recent floods. According to the Chief Commissioner's orders, "In the case of Manipur and Nowgong, reports should be

[72] From Lt. H. Rutherford to the David Scott, Agent to the Governor General, North East Frontier, Jorhautte, 27th November 1830, File No.417 of 1829, Assam Commissioner's Papers, ASA.
[73] B. C. Allen, Assam District Gazetteers, Vol. V, Darrang, Allahabad: Pioneer Press, 1905, emphasis added.

made as to whether there have been any previous floods in these districts, and if so, when and what were their causes."[74]

The state often passed off 'natural' and non-preventable factors to be the causes for floods, in this case as well as in many others, such as heavy rainfall, etc., dismissing suggestions that it might be attributed to man-made factors like ill-planned embankments, railways and roadways, obstruction of the natural drainage of the river basin, etc. The Government of India intervened in December 1916 to direct the local colonial bureaucracy "to take very early steps to investigate the causes that led to these exceptional inundations and to report to the Government of India what remedial measures can be devised."[75] In absence of any scientific investigation or observation worth noting till then, the causes of flood admittedly had to be subjects more of conjecture.

> The occurrence of such a heavy and widespread rainfall must in my opinion invariably produce a flood. What is important is that the flood water should be carried off rapidly, and should not as it did on this occasion, submerge the crops for lengthy periods. A disquieting feature in the situation is that when the recent floods occurred, the Barak and Surma rivers were well below their rains level, while the big *haors* in the Sylhet district were far from full. Notwithstanding all this the flood water did not flow off until irreparable damage has been done to the crops. Whether or not the levels of the main rivers in the Surma valley are altering and drainage is less affective than it used to be are questions for experts to decide.[76]

Similar conclusions were arrived at for the Brahmaputra Valley floods of that year, and particularly regarding the causes of the recent floods in the Kapili Valley in the Nowgong district. P. R. T. Gurdon, the Commissioner of Assam

[74] From B. C. Allen, Chief Secretary to the Chief Commissioner of Assam, to the Commissioner of Surma Valley and Hill Districts and Assam Valley Districts and the Political Agent of Manipur, No.383638R, Shillong 27th October 1916, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA. Emphasis added.

[75] From A. E. Gilliat, Under-Secretary to the Government of India, Department of Revenue and Agriculture, to the Chief Commissioner of Assam, No.1035-6, Simla, 5th December 1916, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA.

[76] From W. J. Reid, Commissioner of Surma Valley and Hill Districts to the Chief Secretary to the Commissioner of Assam, No.8297, Silchar 19th December 1916, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA.

Valley Districts who conducted the enquiry at Kampur in Nowgong consulted the local people, rainfall data and the gauge readings at various points on the Brahmaputra by the end of November 1916. According to Gurdon, "I have framed the provisional conclusion that the causes of the excessive floods in the Kapili area, as well as of the Dayang, the Barpani and the Dikaru were due to excessive rains, in the hills coupled with the backing up of the Brahmaputra river at the same time."[77] However, according to the local officials, nothing on their part could have reduced the damage of floods in any way, not even after receiving prior information about impending floods. "I do not think that information likely to save life or property would be obtained even if officers in the hills telegraphed the occurrence of heavy and continuous rainfall", was the response of the Commissioner of the Surma Valley and Hill Districts.[78] Others too agreed to this. As the Deputy Commissioner of Cachar wrote while discussing "remedial measures",

> Practically nothing can be done to prevent flood water coming down suddenly from the hills. It has been suggested that clearance of jungle would allow flood water to get away more quickly than before, but I doubt whether any extensive clearance has taken place in the higher hills where the flood arise. Warning by telegraph of coming flood is hardly feasible… *All that we can do is to assist the flood water to get away as soon as possible*.[79]

Rainfall, even though regarded to be a major factor causing floods, could not be the only determining factor. As the chief commissioner noted, it was possible that the same amount of rainfall did not do the same amount of damage every year. So it was presumed that "This may be due to the present state of railway

[77] P. R. T. Gurdon, Commissioner of Assam Valley Districts, to the Chief Secretary to the Chief Commissioner of Assam, No.158G, Gauhati 2nd April 1917, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA, emphasis added.

[78] From W. J. Reid, Commissioner of Surma Valley and Hill Districts to the Chief Secretary to the Commissioner of Assam, No.8297, Silchar 19th December 1916, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA.

[79] H. A. C. Colquhoun, Deputy Commissioner of Cachar, to the Commissioner of Surma Valley and Hill Districts, No.3205, Silchar, 4th December 1916, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA, emphasis added.

embankments and roads and levels of river beds."[80] Thus, though the annual amount of rainfall in the Brahmaputra Valley region and its adjacent hills was calculated to be one of the highest in the world, only on certain conditions this factor caused destructive floods. As the state itself admitted, when the natural drainage system of the region was interfered with through the construction of roads, embankments and such other obstructions, the impact of the runoff could turn normal floods into destructive ones.

Jhumming Forests, Harvesting Floods?
Colonial Demonisation of Shifting Cultivation

The perceived relation of *jhum* or shifting cultivation on the hills to the floods in the plains engaged the attention of the colonial government during this time.[81] The forest department officials were at the forefront in arguing that *jhum* in the hills aggravated the floods in the valley. They therefore advocated stringent actions to discourage this mode of cultivation and for the reservation of the forests. The Conservator of Forests in Cachar Division argued in April 1917,

> [The] prevalence of *jhumming* in all these hill tracts had a considerable effect in increasing the damage done by the disastrous floods of 1915 and 1916. In a country like India where the rainfall is mainly dependent on the monsoon, it is not claimed that the presence or absence of more or less forest growth has any material influence on the precipitation. There can be no doubt however that the destruction of the natural canopy and of vegetable mould in the ground by laying bare the surface lessens the absorptions of moisture and increases the amount the violence of the run off. If the hill tracts had been uniformly clothed with a natural forest growth, a much greater proportion of the rainfall would have been absorbed and given off more gradually, thus obviating the violent rise in the river level, while the enormous quantity of silt which was derived from bare and

[80] Chief Commissioner's Note, 8th January 1917, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA, emphasis added.

[81] From the Chief Secretary to the Chief Commissioner of Assam, to the Secretary to the Government of India in the Revenue and Agriculture Department, No.62, Shillong 20th December 1917, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA.

> insufficiently protected surfaces would not have been brought down and deposited in the Cachar plains where it caused such widespread damage.[82]

Even though the discussion on the said adverse effects of *jhum* particularly centered in the context of the Barak Valley, this was seen as a general phenomenon for all rivers of the province. The enquiries into the causes of floods in the province was summarized in a report by Asom's chief engineer in November 1917, which tried to give expert answers the unresolved questions regarding the 'flood problem' and recommended measures for their solution. Many of the findings of the enquiry were accepted, but were rarely put in practice.

The report pointed out that the recurrence of the three floods in 1913, 1915 and 1916 must be ascribed to natural causes beyond the control of human agency, namely, "simultaneous heavy rainfall over the greater part of the catchment area. Abnormal floods like this are bound to occur from time to time."[83] The report suggested that the remedy to the problems caused by destructive floods was mitigation and alleviation, not through flood prevention or protection. It was also pointed out that the beneficial effects of the floods should not be lost sight of, and that "these floods are by no means an unmixed evil, the harm done in one year being often more than compensated in succeeding years by the increased fertility of the land through the silt deposited on it. It is only when there is a succession of abnormal flood years that the cultivator seriously felt the stress."[84] For the continued fertility of the cultivated soil it was necessary to allow the deposition of silt brought down by floods. So the chief engineer of was categorical in saying that

> Nothing that could interfere with the raising of the low lands by silting, such as marginal bunds (Marginal bunds along the edges of rivers for the purpose of

[82] Conservator of Forests, Cachar Forest Division, Western Circle to the Chief Engineer, Assam, No.1617-18R, 2nd April 1917, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA.
[83] *Note on Floods in the Surma Valley, Assam, their Causes and Remedies*, by F. O. Lechmere-Oertel, Chief Engineer, Public Works Department, Shillong 6th November 1917, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA.
[84] Ibid.

protecting fields from inundation were in use in Assam long before the British occupation.) along the rivers, should be permitted. *Bils* or *hoars* should only be allowed to be drained under very exceptional circumstances.[85]

The chief engineer was also against the construction of high road banks across the path of natural drainage, and if at all permitted, they were generally to be kept below high water-level so that floods could pass freely over them.[86] Since this was not possible with railway embankments and had of necessity had to be above the highest flood level, it was recommended that railway embankments needed to be provided with ample waterways so that they did not hold back flood waters.[87] Further, it was felt necessary that the quantity and quality of silt brought down by various rivers should be ascertained, which would then play an important role in any future land reclamation scheme.[88]

On the crucial question of the relation between *jhumming* and floods, the report found that there was no doubt that the destruction of forests and undergrowth that accompanied the practice of *jhum* cultivation was "to some extent at least" responsible for the rapid discharge of flood-water and for the denudation of soil on the hill sides, and in some cases for and landslides and landslips. The forests at headwaters of the rivers acted as big sponge, retaining the rain and letting it soak slowly into the soil, instead of running off quickly from the surface and producing disastrous floods, the report noted. It further suggested that measures must be taken to preserve the forests of the hills, and particularly of those from which rivers ensued. It was also recommended that "*jhumming should be prohibited at any rate at the head waters of rivers.*"[89] The report identified the ongoing process of deforestation in the plains another cause for floods that took a devastating form. Moreover, "The extension of tea gardens and of rice and other cultivation in the valley has no doubt also helped to increase floods through the removal of jungle and through improved drainage." However,

[85] Ibid.
[86] *Note on Floods in the Surma Valley, Assam, their Causes and Remedies*, by F. O. Lechmere-Oertel, Chief Engineer, Public Works Department, Shillong 6th November 1917, Nos.1-62, Rev.-A, June 1918, Assam Secretariat Proceedings, ASA.
[87] Ibid.
[88] Ibid.
[89] Ibid.

financial considerations compelled this factor to be overlooked in the report, since the chief engineer admitted, "the benefit outweighs the harm" for the state.[90]

The report came up with four broad recommendations. First, to control and check the running down of flood-water from the hills, forests in the catchments areas of rivers were to be protected by declaring Reserved Forests and prohibiting forest destruction through *jhumming* or such other activities. Secondly, it was to be ensured that no unnecessary impediments were created to the flow of the flood-water in its passage through the Valley to the sea, be it by closed and high railway embankments or raised roads. Thirdly, low-lying tracts needed to be raised above flood-level by channelizing the deposition of silt, which was only possible if no embankments on the river banks was allowed to be erected. And lastly, collection of systematic scientific data for better monitoring and study of the floods was needed to be taken up. Though the enquiry was an important step towards understanding the flood dynamics of the region, none of the studies it initiated or the recommendations put forward, were actually put into practice. The matter was shelved for a few more years, till another wave of high and damaging floods brought the issue back in sharp relief.

Government of India also directed the provincial authorities to conduct scientific enquiries and collect scientific data in July 1918. The Chief Commissioner clarified that these steps were "merely preliminary to a systematic enquiry by a forest officer, specially deputed for a purpose", and to be done in coordination with the departments of revenue, forest and PWD. Yet, with the laying down the share of responsibility for the three departments, the government also for the first time initiated the process of collecting systematic scientific data to monitor and study the floods of the Brahmaputra Valley, building the base for 'expert knowledge'. He stated,

> It was the business of the Revenue officer (1) to select localities for comparison, (2) to make such arrangements as possible for the recording of the rainfall in

[90] Ibid.

> those localities and in the catchment areas above them, (3) in cooperation with the forest department, to record the extent of jhumming in the catchment area, (4) to keep notes of the floods and extent of flood damage. It is the business of the PWD to arrange for the taking of levels showing the rates of rise and fall of the floods, to estimate the velocity and volume of the discharge, and to deal with other such matters requiring expert knowledge. The responsibility of the forest department would be chiefly in regard to the catchment areas, where they would be in a position to know the extent of jhumming and the nature of the forest and jungle with which the hillsides are clothed.[91]

One of the main objectives of this exercise was to determine the effects of *jhum* or shifting cultivation on floods, i.e., whether the damage done downstream by rivers coming down through hills cleared for *jhum* was greater than that caused by rivers flowing through hills which were forested and under less or no *jhum*. However, as pointed out by P. R. T. Gurdon, the Commissioner of Assam Valley Districts, the extent of damage caused by floods depended on many factors and not merely on whether the region around the headwaters of a river was under *jhum* or not. He pointed out that the floods in a river depended on a combination of factors, including the size of the river. A large river, other things being equal, did more damage than a small one. The magnitude of floods was also contingent upon the depth of the river bed. If the channel was deep and wide enough a sudden and great influx of water might do no harm. The presence and absence of bunds on a river and the terrain in which its course lay also determined the extent of floods. Similarly, the level of the country through which the river flowed, the extent to which the country was cultivated, the presence of other large rivers in the neighbourhood, the coincidence of a flood in the Brahmaputra with a flood in any of its tributaries, the suddenness of flood due to rainwater not being held up by the undergrowth on heavily *jhummed* and cleared hills, all contributed in varied degrees to influence the intensity of a flood.[92]

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[91] From the Chief Commissioner of Assam to, the Commissioner, Assam Valley Division, No.376R, 28 January 1919, 'Remedial Measures against Floods in Assam', Assam Secretariat Proceedings, Revenue Department, Rev.-B, February 1919, Nos.54-56, File No.F-5/19, ASA.

[92] From P. R. T. Gurdon, Commissioner of Assam Valley Division to the Secretary to the Chief Commissioner of Assam, Jorhat 7 December 1918, 'Remedial Measures against Floods in Assam', Assam Secretariat Proceedings, Revenue Department, Rev.-B, February 1919, Nos.54-56, File No.F-5/19, ASA.

Moreover, such an experiment was fraught with many difficulties, the problem of comprehension perhaps being one of the least difficult. The political officer of Sadiya Frontier Tract, through which many of the major tributaries of the Brahmaputra passed, complained on receiving directions to conduct the above enquiry in the region under his charge, "I am not quite clear as to what is meant by 'catchment area'. The term may be extended to mean the valley of a river till it debouches on to the plains. In this case it is impossible to prevent *jhumming* in this or in any other Hill District that I know. *There would be no land left for cultivation*. If however the words are intended to mean the area near the source of a river I can without hesitation say that the Chief Engineer's conclusions do not apply in the case of the local rivers and hill torrents of this district."[93]

The conclusion of the Chief Engineer J. N. Taylor referred to here was undoubtedly an unambiguous one, though one may not say the same as to its veracity. According to him, "it has long been established that the intensity of flow off from forest clad catchment areas is very much less than from areas which have been denuded of their vegetation and no experiments or observations are really needed to further establish this self evident fact."[94] The experiments contemplated, he believed, might however help in obtaining more precise information regarding the degree in which *jhum* affected the floods in the rivers of the region by keeping recordings on rain and river flood gauges.

This view was contested by district officers who observed the rivers in their localities. Giving the instance of the Nam Diyun or the Noa Dihing River in the Sadiya Frontier Tracts – the easternmost region of the Brahmaputra Valley – the political officer argued that this river, the longest one in that district, experienced the most sudden rise and fall in the floodwaters. This was in spite of the fact that

[93] From W. C. M. Dundas, Political Officer, Sadiya Frontier Tract, to the Under Secretary to the Chief Commissioner of Assam, Revenue Department, No.706G, Sadiya 5 July 1919, 'Remedial Measures against Floods in Assam', Assam Secretariat Proceedings, Revenue Department, Rev.-B, February 1919, Nos.54-56, File No.F-5/19, ASA.

[94] From J. N. Taylor, Chief Engineer of Assam, to the Chief Secretary to the Chief Commissioner of Assam, No.3965R, Shillong 1 July 1920, 'Remedial Measures against Floods in Assam', Assam Secretariat Proceedings, Revenue Department, Rev.-B, February 1919, Nos.54-56, File No.F-5/19, ASA.

its catchment area was heavily forested, with only five houses of 'Singphos' anywhere near its headwaters. He inferred that the sudden rises in this or other smaller rivers there was caused by the steep slopes of the catchment area, which brought the rain waters into the river bed in no time.[95] Similarly, the Commissioner of Surma Valley and Hill Districts also pointed out that "the rate at which the water rises in a given river after rain depends not only on jhumming but also on a number of other factors, e.g., rainfall over catchment area, extent of catchment area, configuration of the area, nature of the soil in the catchment area and the configuration of the river bed."[96]

It was also felt that the value of the results obtained would be very doubtful unless the experiments were conducted "whole heartedly" and on the basis of a research extending over a considerable period. For its success, the experiments had to be carried out by "a competent officer who has thoroughly examined the hydrographical features of the district in which the experiment has to be conducted."[97] At the end of a series of official correspondence that lasted more than a year, the Chief Engineer of Assam came to the conclusion that "After carefully considering the question, I am of opinion that statistics collected in connection with this subject will serve no really useful purpose", and if at all observations were to be recorded, he suggested that two small areas of not more than 80 square miles be selected for comparing the effects of *jhum* on floods.[98]

Though this initial attempt at undertaking scientific experiment on determining the causes of floods in the Valley was a non-starter, it was nevertheless agreed

[95] From W. C. M. Dundas, Political Officer, Sadiya Frontier Tract, to Deputy Conservator of Forests, Assam, Memo. No.2268G, 9 March 1920, 'Remedial Measures against Floods in Assam', Assam Secretariat Proceedings, Revenue Department, Rev.-B, February 1919, Nos.54-56, File No.F-5/19, ASA.
[96] From H. C. Barrnes, Officiating Commissioner of Surma Valley and Hill Districts, to the Chief Secretary to the Chief Commissioner of Assam, No.1572, 6 March 1920, 'Remedial Measures against Floods in Assam', Assam Secretariat Proceedings, Revenue Department, Rev.-B, February 1919, Nos.54-56, File No.F-5/19, ASA.
[97] From the Officiating Executive Engineer, Sylhet Division to the Deputy Commissioner, Sylhet, No.3469, Silchar 12 November 1919, 'Remedial Measures against Floods in Assam', Assam Secretariat Proceedings, Revenue Department, Rev.-B, February 1919, Nos.54-56, File No.F-5/19, ASA.
[98] From J. N. Taylor, Chief Engineer of Assam, to the Chief Secretary to the Chief Commissioner of Assam, No.3965R, Shillong 1 July 1920, 'Remedial Measures against Floods in Assam', Assam Secretariat Proceedings, Revenue Department, Rev.-B, February 1919, Nos.54-56, File No.F-5/19, ASA.

that gauge-readings of water-levels in some select rivers needed to be installed. The rivers Gabhoru, Bhoroli, Borgong and Boroi in Darrang district were selected for the purpose, and gauges on the edges of the low banks on the Trunk Road where it crossed these rivers as well as concrete bench marks on comparatively high banks were erected for taking measurements.[99]

Almost a decade after this enquiry, the provincial government's Public Works Department appointed another Flood Enquiry Committee in the year 1929. Its objective was to examine the extent of flood aggravation and abatement caused by railway embankments and raised public roads with insufficient water passages through them. The committee was asked to suggest remedies including alterations of alignments or even the abandonment of the ways where essential to minimize any adverse effect they could cause.[100] The committee interviewed many "notable persons" in Cachar to find out the cause of the recent abnormal/extraordinary floods in the Barak River and its tributaries. Some of the causes pointed out were indiscriminate felling of trees in the hills surrounding the Barak valley, the practice of *jhum* cultivation, inadequate opening in railway embankments, silting of the rivers, and even the increase of area under tea cultivation. According to one Sanat Kumar Das, a government official, "the block system of timber extraction whereby intensive clearing of forests is done from concentrated areas in the Lushai Hills, Manipur, and Sonai, Madhura, Chiri and Jiri valleys" led to the aggravation and intensification of floods in the Barak Valley. Das also noted that "*The number of tea gardens is gradually increasing and additional areas are being cleared for cultivation*. Even the portions in the valley which are water-logged grow Assam Tea and the drains made there bring water quickly down to the main streams."[101]

The Flood Enquiry Committee also inspected many sections of the railway lines in the Brahmaputra Valley, both in the north as well as south banks of the

[99] From G. E. Soames, Deputy Commissioner of Darrang to the Commissioner, Assam Valley Districts, No;.4509R, 7 February 1920, 'Remedial Measures against Floods in Assam', Assam Secretariat Proceedings, Revenue Department, Rev.-B, February 1919, Nos.54-56, File No.F-5/19, ASA.
[100] *Report of the Flood Enquiry Committee*, *Assam*, Shillong: Assam Secretariat Printing Press, 1930, p.1.
[101] Ibid., p.13. Emphasis added.

Brahmaputra from 6 to 9 January 1930. These included Golakganj-Amingaon section of Eastern Bengal Railway, Guwahati-Chaparmukh, Chaparmukh-Senchoa and Senchoa-Moriabari sections of Assam-Bengal Railway, Farkting-Badulipara-Jorhat and Simaluguri-Khowang branches of Assam-Bengal Railway. It found that the railway embankments in many cases had led to the disturbance of the natural drainage of the Valley, making previously flood-immune areas flood-prone and water-logged, a suggestion vehemently countered by the railway authorities.[102] The committee came to the conclusion that,

> Railway embankments and public roads do aggravate the effects of the floods on the upstream side especially where the water passage through them is insufficient. As to how far railway embankments and public roads aggravate, have aggravated or tend to aggravate those effects, all the evidence shows that *the aggravation during abnormal floods may be serious, but is in most cases beyond control*. During normal floods the aggravation is less serious and is capable of being controlled within reasonable limits.[103]

The committee recommended the establishing of gauge-meters at various points on the main rivers of the Brahmaputra Valley to be maintained and read by the Public Works Department. Further, the committee suggested that the possibility of dredging the beds of rivers, especially in their lower reaches, needed to be considered after the formation of a Waterways Division within the PWD. The committee itself was, however, "very doubtful" about the effectiveness of dredging a large river like the Brahmaputra.[104] Significantly, the report of the Flood Enquiry Committee noted that it had "*considered methods of reducing the*

[102] Ibid., p.26.
[103] Ibid, emphasis added.
[104] The following observation of the Orissa Flood Committee was quoted by the present Report to show the inadvisability of dredging: 'Similarly, to dredge the course of the rivers, as has sometimes been suggested, is to attempt to challenge deltaic action and would inevitably be doomed to failure. The sand would deposit again as quickly as it could be removed. Equally ineffective would be any attempt to shorten the course of a river carrying heavy sand by cutting through its loops. The formation of loops is a natural tendency, depending largely upon the velocity of the water and the nature of soil through which the river flows; even were such loops cut through, the river would not maintain a straight course but would merely form new loops elsewhere.' *Report of the Flood Enquiry Committee*, *Assam*, Shillong: Assam Secretariat Printing Press, 1930, p.6.

abnormal flood conditions by means of reservoirs or impounding areas and consider these to be impracticable."[105]

There is little evidence to show that corrective measures were undertaken with any earnestness during the first half of the twentieth century even though many of the man-made causes of floods were identified. But some of these, such as the purported adverse effect of *jhum* cultivation, were used as justification for closing off forests etc. from tribal communities, declaring them as reserved forests and prohibiting the practice of shifting cultivation therein. At the same time, the threads of many of these scientific investigations carried out by the experts of the colonial government in the Brahmaputra Valley were picked up by the scientific agencies of the Government of India after 1947, though as we would argue, for entirely different purposes.

Work as Relief

As we approach the mid-twentieth century, we find further evidence of peasants demanding reclassification of lands made uncultivable by the rivers. In a petition signed by 84 peasants of Tihu circle to the Deputy Commissioner of Kamrup in February 1937, the following appeal was made, informing that about 4000 bighas of land has become fallow, yet the rent charged by the government was as per the best cultivable land. They wrote,

> The lands of Nadala, Uttar Amoni, Dakhin Kaithalkuchi, Pub Sandheli of Dharmapur Mauza and Pub Bhojkuchi Block of Nam Borbhag Mauza are for almost last 6/7 years are being rendered waterlogged and lying fallow due to the atrocities of the two Rivers Pagladiya and Burhadiya. In the present days of economic distress it is difficult even to pay the revenue of cultivated land, so having to pay the revenue of this fallow land it has caused us the poor ryots great injustice. We the poor ryots prey to the government to favour us with a reclassification of the said lands.

[105] Ibid., p.11.

This was followed by another petition signed by 110 villagers in January 1938, ruing the fact that several pleas and appeals to the government in the past had failed to bring any relief. They informed that

> Having received no favourable response from the government, and having no other means at their disposal, the villagers themselves undertook the task of cutting a small channel [called *dong*] of half a mile of length through the said land to drain out the waters to the Burhadiya River in the south by spending nearly Rs.250. Yet the work has remained incomplete as another 1½ miles of the channel needs to be dug, and therefore has yielded little benefit. To muster the resources for completing the task is beyond the means of the poor ryots.

The peasants therefore appealed for a sanction of Rs.500 towards finishing the task, or alternately, to reclassify the land as well as to waive the land revenue of that area till it was once again fit for cultivation. The Under-Secretary of the government referred it back to the district officials, as he deemed it "a matter for the local authorities in the first instance to deal with".[106] After receiving a report from the district officials, the government agreed that "the nalla will be beneficial to the villagers", but it further noted that "In these days of financial stringency it is doubtful the scheme can be treated as imperative."[107] The Deputy Commissioner was of the opinion that the "proposed dong should be dug by the villagers". According to the revenue secretary of the provincial government, it was estimated that an area of about 8000 *bighas* could be brought under cultivation by draining the surplus water through the proposed *dong* with an estimated expenditure of nearly Rs.5000.

The Commissioner argued that rather than the government entirely bearing the burden of the work, the ideal situation would have been to get the work done by the villagers themselves, but conditions were found to be unfavourable for the success of such an effort. Further, it was asserted that "In these matters of rural

[106] Note by the Under Secretary, Revenue Department, Government of Assam, 19th April 1938, "Construction of Dongs in Dharmapur and Khetri Dharmapur Mauzas in the District of Kamrup", File No.726-749, Rev. B, June 1940, Assam Secretariat Proceedings, ASA.

[107] Note by the Under Secretary, Revenue Department, Government of Assam, 31st October 1938, "Construction of Dongs in Dharmapur and Khetri Dharmapur Mauzas in the District of Kamrup", File No.726-749, Rev. B, June 1940, Assam Secretariat Proceedings, ASA.

economy I found the villagers have as shrewd an idea about the pros and cons as anybody else and although government may hesitate to foot the entire bill without making sure of the utility of the project by expert advice, encouragement may be given to the villagers by promising, say, half the cost, if they agree to find the remainder in labour and money."[108] The lack of scientific expertise and data was presented as a hurdle against taking up the work, and that the government "cannot take up work like this on an extensive scale without a properly equipped Irrigation Department." Yet, since the proposed *dong* was a project "which has the odds heavily in favour of ultimate benefit", it could be started without waiting indefinitely for expert advice. Nor was there any question of government acquiring land for the purpose if the villagers themselves wanted the *dong*.

The revenue minister echoes the opinions of his bureaucrats that villagers should be encouraged and asked to contribute by labour and money as much as they could to undertake the project. The minister later visited the region and concluded that "by bringing the surplus water through the proposed *dongs*, a vast area would be brought under cultivation as a result of which not only the people of the locality would get benefit but also the government might expect to get some more revenue." He further noted that

> The people assembled agreed to contribute a sum of Rs.2000 towards the construction of this *dong*. This will mean that according to the estimate of the PWD government should sanction another sum of Rs.3000 or a little more towards this scheme. This, in my opinion, should not be grudged as ultimately the government will be gainer if the quality of the lands is improved.[109]

The request for monetary assistance for another *dong* that was undergoing construction through the voluntary labour and contribution of the peasants in the same mauza was placed before the minister. He was of the opinion that

[108] Note by the Secretary, Revenue Department, Government of Assam, 15th November 1938, "Construction of Dongs in Dharmapur and Khetri Dharmapur Mauzas in the District of Kamrup", File No.726-749, Rev. B, June 1940, Assam Secretariat Proceedings, ASA.

[109] Note by the Revenue Minister, Government of Assam, 23rd January 1939, "Construction of Dongs in Dharmapur and Khetri Dharmapur Mauzas in the District of Kamrup", File No.726-749, Rev. B, June 1940, Assam Secretariat Proceedings, ASA.

"when the people of the locality have done so much, government should not hesitate in contributing a small sum of Rs.500, which amount I am inclined to sanction for the completion of this project at an early date."[110] The question of the competent government agency to carry out the work also came up for debate. The revenue minister concurred with the opinion of the deputy commissioner in saying that

> if work is to be carried out there expert assistance is necessary by a department of government, which posses the expert knowledge and assistance. In the case of irrigation, success depends upon level etc., and PWD is the proper department [and not that of the deputy collector's]. When small projects not requiring expert knowledge and assistance are to be carried out in the submontane area among people who have the tradition of constructing irrigation channels on their own, government assistance may be limited to tendering such advice and monetary assistance as may be needed.[111]

Finally, it was decided that the works would be carried out in the 1940-41 season by the Embankment and Drainage Division of the PWD, which was to become functional from 1 April 1940.[112]

The prevailing political atmosphere was also reflected in the turf wars between the government and the provincial workers of the Indian National Congress on questions of relief to the peasants in distress caused by floods, draughts or other calamities, which often hinged on the issue of waiving or remission of the land revenue. A reported incident of famine in Madhyam Baska *mauza* in Kamrup district was an occasion for such contrasting perceptions and approaches to come to the fore, revealing not only the reluctance of the colonial government to acknowledge the distress of the peasants, but also the social base and class character of the Congress, which hardly reflected the interests of the most

[110] Ibid.
[111] Note by the Revenue Minister, Government of Assam, 23rd December 1939, "Construction of Dongs in Dharmapur and Khetri Dharmapur Mauzas in the District of Kamrup", File No.726-749, Rev. B, June 1940, Assam Secretariat Proceedings, ASA.
[112] Note by Under Secretary, Revenue Department, Government of Assam, 19th January 1940, "Construction of Dongs in Dharmapur and Khetri Dharmapur Mauzas in the District of Kamrup", File No.726-749, Rev. B, June 1940, Assam Secretariat Proceedings, ASA.

oppressed sections of the peasantry. However, the ensuing exchanges bring forward the prevailing acute agrarian crisis in parts of the Valley. In a petition to the government a local Congress functionary reported in June 1938,

> The Baska region in the northern part of Kamrup district is known as the Kachari mahal. Most of the inhabitants of this region are Kacharis [also at that time used interchangeably with the Boros, a tribal community]. They can't even express their grievances. Presently a famine has widely set in covering this entire region. Due to their inability to communicate about their distress, you may not have been aware of the true condition of the region. Paddy, the main crop of this region, could not grow adequately last season due to paucity of rainwater. Whatever was produced was all sold off by the people during Falgun-Chaitra [January-February] to meet the demands from the mahajans [moneylenders] and land revenue arrears. Thereafter people survived somehow by begging and foraging, but now-a-days even begging yields nothing. Therefore people are forced to go hungry. Some people are surviving on wild roots and tubers. It will be difficult to keep them alive if no relief is immediately provided. For your information a list of the families which are forced to go hungry have been attached here [It follows a list of 56 families with a total of 278 persons]. I hope that you will enquire into the matter and provide the much needed relief to the hungry without delay. The following, in my assessment, needs to be done to ameliorate the condition of the famine-struck subjects: (1) Distribution of foodstuff to the hungry people after enquiry, (2) distribution of seeds to the peasants who do not have access to seeds through the agricultural department, (3) to stop the collection of land revenue after enquiry. After enquiry, land revenue should be collected from those who can afford it, those who cannot pay the revenue immediately it should be remitted, and those who are not at all in a position to pay their due should be waived.[113]

The leader of the Congress in the Assembly and the future prime minister of Asom Gopinath Bordoloi wrote to the revenue minister Rohini Kumar Chaudhuri, requesting him to order an immediate inquiry to ascertain the extent of the distress in the Kachari *mahal* and start relief operations without delay. He also

[113] Petition by Pratap Chandra Goswami, Nalbari Sattra, to the Government of Assam, 6th June 1938, "Scarcity in the Madhya Baska mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA, translation from Assamese mine.

urged that the agricultural department be asked to freely supply the needy with paddy seedlings and to suspend the realization of land revenue in the affected villages, granting remission after enquiry to those who were incapable of paying their revenue dues.[114]

The alarm raised about the perceived scarcity to the proportion of a famine condition was, however, perceived by the government to be "more 'political' than real"[115], and therefore as nothing but an attempt by "the leaders of the Congress Party… to make some use of this alleged scarcity in his political propaganda".[116] Nevertheless, an enquiry by the Deputy Commissioner was ordered. The officer reported that he "saw as many of the alleged foodless men as could be produced…villagers from other villages – Mohina, Santipur, Bherbheri, Dhamdhama, Harharia, Goalbil, all came to say that they were in want of food."

The enquiry also revealed that the petitioner P. C. Goswami had land in the area paying Rs.440 land revenue per year in the adjoining villages of Tupolia, Adala, Simlabari and Uttarpara. This year he went on 2 June and camped there four days for this purpose as he used to do every year. There, finding that there was a general scarcity of food that year, he made enquiries and on the basis of it wrote to the government, the Commissioner, the Deputy Commissioner and the Congress office at Guwahati. After collecting his rent, the landlord went off, the government officer complained, without rendering any help to his tenants or other distressed villagers. A Congress worker later came to Tupolia and distributed seven bags of paddy to seven persons, and returned.[117] The officer's report described his experience of meeting the starving villagers,

[114] From Gopinath Bordoloi, Assam Assembly Congress Party, to Rohini Kumar Choudhuri, Minister of Revenue, Assam, 12th June 1938, "Scarcity in the Madhya Baska mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

[115] Note by the Secretary, Revenue Department, Government of Assam, 8th August 1838

[116] Note by the Revenue Minister, Government of Assam, 16th June 1938.

[117] From G. B. C. Paine, Deputy Commissioner, Kamrup to the Commissioner, Assam Valley Division, File No.3212R, 25th June 1938, "Scarcity in the Madhya Baska mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

> One Durgaram Matia of Ghoramara told me that on the whole people had enough to eat, and needy persons borrowed from mahajons. This happened every year. One Dharaja of Ulubari said that only two families in his village had enough to eat. He had not. He was going to Dhamdhama with eight annas to buy some pigeons for sacrifice and other things. Other villagers gave similar reports, and it appeared that there was some scarcity in this area at this season every year, though perhaps there was less paddy available this year owing to the drought last year, which decreased the outturn of ahu. I met also one Bhakua Koch (listed in P. C. Goswami's list) of Tupolia and he said he was going to Dhamdhama to borrow paddy. He said the outturn of paddy has been bad, especially in the last two years… In Tupolia there are roughly 50 families, in Khagrabari some 60 families, and in Thankuchi roughly 25 families…All these men were tenants of the Goswami brothers. So also was Kachari, who had cattle, and had paid his rent this year. Sastiram (no a Goswami tenant) had a pair of bullocks, four bighas of land, as well as one pura on adhi terms. He had been subsisting on borrowing since March…Puaram had no land and no cattle. Lived on borrowing and begging. Did so last year also…At Thankuchi, the listed persons that I met gave similar reports: so also at Khagrabari. Khad said he never avoided want in any year. He had no land except his basti land. Akhar said he had 20 bighas and a pair of plough cattle, but had been in want for the last ten years. Others examined gave similar reports.[118]

From there, the Deputy Commissioner Paine visited Madhyam Baska, where the majority of the *raiyats* was said to be Kacharis and Koch, who were perceptibly worse off than their 'Hindu' neighbours.

> Madhyam Baska land is high (being towards the Bhutan Hills) and the main paddy crop appears to be *ahu*. The villagers are mainly Kacharis, Koches, etc. The cultivation, though fairly permanent, is patchy – large area of jungle being scattered between fields. The land is not valuable…almost every year at this season there is scarcity…Here, as in other Baska mauzas and in the northern mouzas of Barpeta, the poorer people run short, and manage by begging and borrowing. The borrowing is at high rates of interest (50% or 100%) from co-villagers or mohajons. There has been some lack of rain in the past two years

[118] Ibid.

> and so it seems that borrowers find borrowing more difficult. I could not find any reason why Tupolia, Khagrabari, and Thankuchi should suffer worse than other villages. People that came to me from other villages of the mouza told the same story. For instance, villagers of Angar Dua said that there were 40 families out of 60 without paddy. Kacharis of Santipur (Madhyam Baska) came to complain to me. There were said to be 200 Hindu families there, and 60 Kachari families. No Hindus came to complain.[119]

After conducting his tour, the officer concluded that the people were not in any serious condition of scarcity, and although the poorer people particularly the Kacharis and other tribal peasants were in some difficulty, this was in no way unusual, leading him to assert that "there was no immediate fear of famine". As for the relief measures, he neither recommended the distribution of paddy or seedlings, nor money loans, with the plea that while the former was never demanded, the latter could "go back to the mohajons"[120], and that "the issuing of loans to shiftless people is not desirable in the interests of the people themselves"[121].

In a later report, the Deputy Commissioner reasoned that relief of the kind demanded could not be granted as "other Baska mauzas will demand similar action for themselves, and it seems to be that there will be some difficulty in denying their demands." Rather, as a means of improving the irrigation and "as a practical and permanent measure of relief in this area", he recommended the construction of two large *dongs* in the next cold season with government funding, in which he anticipated the help of the people in undertaking the 'rough work'. The district official maintained that "Only indirectly, and very slowly" any improvement of a permanent nature could be achieved, which was related to the improvement of the "method of living of the Baska Kacharis, by the provisions of

[119] Ibid.

[120] From C. B. C. Paine, Deputy Commissioner, Kamrup, to the Under Secretary, Government of Assam, Revenue Department, No. 3911, 20th July 1938, "Scarcity in the Madhya Baska Mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

[121] From C. B. C. Paine, Deputy Commissioner, Kamrup, to the Commissioner, Assam Valley Division, No. 4629R, 23rd August 1938, "Scarcity in the Madhya Baska Mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

dongs dug by trained diggers in the proper season so that cultivation may be more successful…without making the Baska Kacharis dependent on yearly contribution from government".[122] The dongs were considered to be the "only water source of cultivation of us all" in the Baska mauzas.[123] The work was to be started by the villagers in the month of January in 1939, "when their cultivation will not be affected." Thus, the government was insistent that "What is needed in these areas is intensive uplift work from resident workers, aided with occasional grants for irrigation and road."[124]

But the Congress disagreed with the government's assessment of the situation, and persisted with their call for immediate and thoroughgoing relief.[125] It was stated that more than 2,000 people in the region were in immediate need of relief, and that "95% of the sufferers are Bodos, Kacharis, Nepalis and ex-tea garden labourers".[126] The opinion expressed by B. K. Bhandary, secretary of a voluntary organisation working in the district also throws light on the prevailing

[122] From C. B. C. Paine, Deputy Commissioner, Kamrup, to the Under Secretary, Government of Assam, Revenue Department, No. 3911, 20th July 1938, "Scarcity in the Madhya Baska Mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

[123] Petition from B. Deka, Secretary of the Baska-Namati Ryot Sabha (with signatures of 545 ryots) to the Deputy Commissioner, Kamrup, through the S.D.C. of Tihu Circle, 15th August 1838, "Scarcity in the Madhya Baska Mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

[124] From C. B. C. Paine, Deputy Commissioner, Kamrup, to the Commissioner, Assam Valley Division, No. 4629R, 23rd August 1938, "Scarcity in the Madhya Baska Mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

[125] "Acute economic distress demands suspension of all sale proceedings in Baska mouza and Pati Darrang", Telegram by Bishnuram Medhi, Chairman of the Gauhati Law Board and President of the Provincial Congress Committee, in letter from G. N. Bordoloi to Minister of Revenue, 18th July 1938. Also, forwarding a telegram from the secretary of the Gauhati Lawyers' Association, Bordoloi wrote to the Chief Minister, "Apparently all that is necessary to be done has not been done. Suspension of realization of revenue has also been one of the points urged, but action in that direction don't appear to have been taken." The telegram read, "Great distress owing to flood and scarcity in Baska Pati Darrang, Chamaria mauzas [of] Kamrup. Gratuitous relief suspension revenue staying sale proceedings prayed". Bordoloi in another letter to the revenue minister pointed out the relief measures sought: "1. Gratuitous relief to those who are in starving condition, 2. Relief loans to all the distressed, 3. Suspension of all revenue realization and stay of sale proceedings for arrears till the next crop is harvested, 4. Agricultural loans according to necessity to enable people to buy plough, cattle, etc., 5. Adequate funds for cutting canals or 'dongs' for irrigation", From G. N. Bordoloi, Assam Assembly Congress Party to the Minister of Revenue, Government of Assam, 20th July 1938, "Scarcity in the Madhya Baska Mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

[126] From G. N. Bordoloi, Assam Assembly Congress Party to the Minister of Revenue, Government of Assam, 20th July 1938, "Scarcity in the Madhya Baska Mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

condition. He wrote, painting a grim picture of the lives of the most oppressed peasants in the region,

> From about a month famine conditions, scarcity and distress are being reported from several parts of the Baska area… In the absence of a thorough enquiry and irrefutable data it would be improper and even harmful to declare famine conditions all at once. But even a casual observer cannot miss the widespread distress and want prevailing in the Baska area. People are known to be feeding on jungle roots, wild vegetables, etc. It is only a sense of honour that makes them shy to disclose the fact to any casual enquirer. It may be noted that the Kacharis and other tribal people are the worst sufferers. It would however be worthwhile to know why the people are progressively getting into the slough of want and misery. This season is usually the worst for them. Their stock of paddy generally exhausts by about May. If the early monsoon are regular they get the first harvest by about the beginning or middle of July. Usually that is their calculation. If the crop fails as it has done mostly this year also there is general scarcity. Then is the opportunity of the petty moneylenders and other traders from outside who have settled even in remote corners. For every rupee lent they now demand and realise 1½ maunds of paddy during the main harvesting season. At a modest calculation it works out at about 200% interest. A man that borrows 10 or 15 rupees this season finds himself in the heart-rending position of handing over the major portion of the paddy to the creditors immediately after harvesting. Sickness, their never-failing companion, and other ceremonials etc. take their own share. With what remains they have to meet the revenue demands. With the rains again that is the beginning of the next cultivating season starts their misery. How well can starving people cultivate their fields? We have known workers who have gone to the fields to plough, lying down on the grass due to exhaustion on account of continuous starvation. The vicious circle, however, once begun goes on and never breaks.[127]

Such was the opinion within the colonial official circles too. As C. B. C. Paine, the Deputy Commissioner of Kamrup observed, "where Kacharis and non-Kacharis are living in close proximity, the non-Kacharis will be found to have no serious lack of food, while the Kacharis are in want". However, such a status of the tribal

[127] Ibid.

community was reduced to their lack of "foresight" and hence the readiness to get into large debts etc., and to their use of paddy for making beer.[128] The district officer, apart from the granting of Rs.5000 for the construction of the *dongs* and a gratuitous relief of an additional Rs.500, was neither ready for remission of the land revenue nor of the sale proceeds of the tenancies. He argued,

> If sales are suspended, arrears will pile up, and the ordinary machinery whereby they are written off will be stopped. This will lead to considerable confusion and to obstruction of later dues, since, with arrears pending the rayot will be less willing than ever to pay any money. My general opinion is that the situation in Patidarrang does not warrant suspension of sales at all, and that while the Kachari people in the Baskas may be suffering from a little more scarcity than usual this year, the ahu crop is now being harvested, and suspension of sales will not, in fact, give relief sufficient to compensate for the extra difficulties that it will inflict on the collecting agents and (by stopping the machinery whereby the settlement is annulled and the dues remitted) to the ryots themselves. It has been a recognised policy for a considerable time to treat the Kachari rayots as leniently and sympathetically as possible in this connexion [sic], and I would suggest that the matter may be left to the discretion of local officers in particular cases, no general orders of suspension being passed.[129]

Higher officials also agreed that "The situation is well in hand" and the talk of famine and scarcity was the handiwork of "interested politicians whose alarm is considerably greater than that of the inhabitants whose cause they plead."[130]

What exacerbated the precarious condition of the peasantry was indebtedness. It was a dire problem mostly faced by the lower classes of the peasantry[131], who

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[128] From C. B. C. Paine, Deputy Commissioner, Kamrup, to the Commissioner, Assam Valley Division, No. 4629R, 23rd August 1938, "Scarcity in the Madhya Baska Mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

[129] From C. B. C. Paine, Deputy Commissioner, Kamrup, to the Under Secretary, Government of Assam, Revenue Department, No. 4321R, 3rd August 1938, "Scarcity in the Madhya Baska mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA

[130] From J. C. Higgins, Commissioner, Assam Valley Division, to the Secretary to the Revenue Department, Government of Assam, No. 856R, Gauhati, 26th August 1838, "Scarcity in the Madhya Baska Mauza in the District of Kamrup and the Construction of a Dong in that Mauza", File Nos. 1169-1215, Rev.-B, June 1940, ASA.

also had to pay land revenue at a rate which the colonial governments themselves admitted, was quite high. It was the prevailing social exploitative conditions such as this, as defined by the usurious relations between the lender and borrower, or that between the landlord and tenant, which exacerbated the impact of floods. In what can be seen as government's admission of the growing indebtedness of the peasantry in the Brahmaputra Valley, the provincial legislature enacted The Assam Debt Conciliation Act in 1936. It was a feeble effort towards addressing the "difficulties of the raiyats in view of the fact that the prices of agricultural produce has fallen while their debts remained constant."[132] Following the provisions of a similar legislation enacted in 1933 in the Central Provinces, the Act was intended to persuade the creditors and debtors through Debt Conciliation Boards to revise the terms of the credit. It was purported to benefit both the parties, since "the honest debtor gets the advantage of having his debt reduced to a limit which in the opinion of an impartial Board he will be able to pay, while the reasonable creditor will obtain the assistance of realizing his reduced dues."[133] While the government wished to take advantage of "general willingness to compromise" which it believed to have existed between the creditors and debtors, this effort decidedly failed to address the deep-rooted and structural causes of indebtedness among the poor and marginal peasantry. The government itself admitted when it moved to amend the above Act in 1943, that without the power to "enforce a settlement in the absence of an agreement between the parties" as in the case of the Act in Bengal, or even to summon the creditors to enforce their appearance before the Board, the entire exercise was fruitless.

From the above discussion it can be surmised that the peasants generally approached the colonial government only when other means of addressing their

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[131] "There is a large proportion of lower class Ahoms and Chutiyas (chiefly responsible for the bulk of our [land revenue] arrears) who are lazy, thriftless, and addicted to opium. The people are indebted and their condition is not good. This result is due in no way to the present assessment… the material condition of the people is largely a question of habit, in other words, that *a man's condition depends upon his caste*." "Assessment Report: Western Golaghat Group, Sibsagar District", Rev.-A, June 1905, Revenue Department, Assam Secretariat Proceedings, ASA, emphasis added.

[132] 'The Assam Debt Conciliation Act 1936 (Assam Act X of 1936)', B. P. Saraf and Ashok K. Saraf (eds.), *Statutes of North East India*, Vol. I, Guwahati: GLR Publishing House, 1984.

[133] Ibid.

distress – be it by taking loans from the village moneylenders at exorbitant and usurious rates, or borrowing grain, seeds and seedlings from the well-off villagers – failed to yield results. The other, or more important conclusion that can be drawn, is that the floods became damaging and destructive when combined with other socio-economic factors such as poverty, lack of ownership of means of production, the quality, quantity and height of land possessed, absence of savings in cash or crops, high rates of land revenue that did not leave a comfortable level of surplus in the hands of the peasant producer, exhaustion of avenues for credit and loan, reluctance of the government to extend gratuitous relief, agricultural loans and seeds, land for rehabilitation, and revenue suspension or remission after floods. Thirdly, destructive floods hit harder and impacted more severely the villages of the poorer and marginalised tribal and oppressed-caste communities, ex-tea garden workers turned peasants, and later the immigrant peasants from East Bengal much more than those of the landowning, relatively well-off, and economically secure villages inhabited by rich or middle peasants and from dominant castes. In addition, not all but the poorer classes of peasants within a village who had no or little land and lived a hand-to-mouth existence, suffered most from the destructive floods.

But it is not surprising that the colonial government emphasised more the natural causes of a flood turning out to be damaging and destructive, and not the socio-economic factors mentioned above. When a series of destructive floods in the early decades of the twentieth century forced the government to undertake enquiries into the causes of floods in the Brahmaputra and Barak Valleys, the result was generally to look into the 'Natural' or ecological causes of floods, and away from the social and economic ones afflicting the society under an exploitative colonial rule.

CHAPTER VII

DESTRUCTION, DAMS, AND DEVELOPMENT: POLITICAL ECONOMY OF RIVER CONTROL

It required the labour of thousands of years for us to learn a little of how to calculate the more ***remote*** **natural** ***effects*** *of our actions in the field of production, but it has been still more difficult in regard to the more* ***remote*** **social** ***effects*** *of these actions… What cared the Spanish planters in Cuba, who burned down forests on the slopes of the mountains and obtained from the ashes sufficient fertilizer for one generation of very highly profitable coffee trees – what cared they that the heavy tropical rainfall afterwards washed away the unprotected upper stratum of the soil, leaving behind only bare rock! In relation to nature, as to society, the present mode of production is predominantly concerned only about the immediate, the most tangible result; and then surprise is expressed at the more remote effects of actions directed to this end turn out to be quite different, are mostly quite the opposite in character…*

- Frederick Engels, *Dialectics of Nature*

The relation between a flood and the damage it may cause to crops is a very complex one.[1]

The state as an instrument of class rule which is used by one class to rule over another and at the same time an instrument to organise social labour to work upon the Natural environment, comes into sharp relief in the reshaping of the

[1] *A Note on the Damage caused by floods in Assam during 1954-55 and relief measures undertaken or proposed*, Shillong: Assam Government Press, 1956.

relation between the society and the rivers of the Brahmaputra Valley during the late twentieth century. Such interventions by the ruling classes through the organ of the state are necessarily aimed to protect and consolidate its own political and economic interests. The state which represented the class interests of dominant social forces under different social formations, has historically undertaken schemes for transforming Nature. Though the ability to and means of taking up such transformative endeavours was contingent upon the level of development of the productive forces as well as the existing relations of production, almost all such major efforts in a class society has been organised mainly through the state. In the present era, worldwide capitalism in its imperialist form has put enormous resources –material as well as intellectual– at the disposal of 'private' individuals and their organisations. As the experience of the last few centuries have shown the world over, the rise of capitalism was distinguished by new forms of exploitation of labour and the plunder of common resources, whereby entire societies have been annihilated, ways of life destroyed, peoples and nations ravaged.

In 1904, the operators of steamers plying on the Brahmaputra between Asom and Bengal reacted sharply to a notification by the Superintendent of Emigration at Calcutta which directed that "dead bodies of emigrants who die on board river steamers should never be thrown overboard but should be either cremated or buried at the nearest landing place."[2] This measure was considered necessary since it was reported by several medical officers in charge of the steamers that they were throwing overboard the bodies of dead passengers and into the river.

The steamer company vehemently protested the new rule, and asked "how impossible it will be for us to run our mail steamers to time under the new rule, and which is a most serious matter to us, seeing that it will involve considerable extra expense to us by reasons of the longer time which will be occupied on the voyage to say nothing of the heavy penalties that will be incurred under the mail

[2] From Messrs. McNeill & Co., Agents, River Steam Navigation Co. Ltd., to the Secretary to the Chief Commissioner of Assam, No. 33P – C.S., Calcutta, 13th February 1904, "Disposal of the Dead Bodies of Coolie who Die on Board the Steamers Plying on the Rivers in Assam", Rev. A, May 1904, revenue Department, Assam Secretariat Proceedings, ASA.

contract, and by the consequent inconvenience to the public by the irregular delivery of the mails."[3] They said, complying with the rule would involve "a large outlay of staff, fuel, etc. which the labour contractors would have to provide for burial and cremation, and the Superintendent of Emigration will have to give notice to all labour contractors and their forwarding agents and set down a scale as to the number of Domes, and the quantity of fuel for every 100 coolies to be carried on board each steamer."[4] To it was added another argument that corpses having to be kept on board for some time would pose danger to the health of the coolies on board the steamers." The operators of the steamer-line demanded that the state allow the procedure of disposing of dead bodies to be carried out as usual. This procedure practiced till date was "to have the corpse sewn up in canvas or a blanket properly weighed with heavy bars of iron or old fine bars, and consigned to the river midstream, where there is deep water"[5]

If we locate this anecdotal episode in the history of colonialism in the region, we will not be surprised to find that the new rule was subsequently annulled by the state to accommodate the interests of the Brahmaputra's freighters.[6] The rules now redrafted read, "That corpses should be thrown into the river only where there is good volume of water and where the steam does not set directly towards a ghat or frequented drinking or bathing place."[7] For the state as well as the British-owned companies it represented had little value of the dead 'coolie' – the future labourer in Asom's numerous tea gardens that never arrived at his or her destination. The thousands of tribal villagers imported from central and eastern India to the plantations who died on the river could simply be consigned to the waters of the river because ensuring them the privilege of last rites would cut into the profits of the steamship-owners, the planters and the state. The 'coolies'

[3] Ibid.
[4] Ibid.
[5] Ibid.
[6] Telegram from Under Secretary to the Chief Commissioner of Assam, to Messrs. Mc Neill & Co., Agents, Rivers Steam Navigation Company Ltd. Calcutta, No.1223R, Shillong, 10th March 1904, "Disposal of the Dead Bodies of Coolie who Die on Board the Steamers Plying on the Rivers in Assam", Rev. A, May 1904, Revenue Department, Assam Secretariat Proceedings, ASA.
[7] From the Secretary to the Chief Commissioner of Assam, to Messrs. McNeill & Co., Agents, Rivers Steam Navigation Company Ltd. Calcutta, No.192 Emgn.-175R, Shillong, 19th April 1904, "Disposal of the Dead Bodies of Coolie who Die on Board the Steamers Plying on the Rivers in Assam", Rev. A, May 1904, revenue Department, Assam Secretariat Proceedings, ASA.

was cheap and expendable, both in life and in death. The same can be generalised in the context of the Indian state's approach to the rivers. The concerns related to people's lives could be forcefully sidelined to make way for upholding the class interests of the ruling power.

The building of multipurpose dams across the world in the twentieth century, particularly in the erstwhile colonies, was a part of the imperialist world economy. The dam industry in the West was going through a geographical reorientation in the second half of the twentieth century as the demand for new dams in the "birthplace" of big dams, i.e., in the U.S. and Europe was reducing, and was increasing in the countries of the 'Third World', including India. The U.S. agencies like the Army Corps of Engineers and the Bureau of Reclamation were engaged in the export of their expertise, technology, as well as finance in building big dams and other hydraulic structures to these countries, ostensibly helping out these countries in their "national development". But as has been pointed out,

> Nothing alters the river as totally as a dam. A reservoir is the antithesis of a river- the essence of the river is that it flows, the essence of a reservoir is that it is still. A wild river is dynamic, forever changing- eroding its bed, depositing silt, seeking a new course, bursting its banks, drying up. A dam is monumentally static; it tries to bring a river under control, to regulate its seasonal pattern of floods and low flows. A dam traps sediments and nutrients, alters the river's temperature and chemistry, and upsets the geological processes of erosion and deposition through which the river sculpts the surrounding land.[8]

This process cannot be understood in isolation from the history of building a network of dams, dykes and irrigation canals outside Europe and North America during the crossroads of the nineteenth and twentieth centuries initiated by British colonialism. It was expected that a regulated regime of year-round supply of water would enable a steady growth of high-value crops such as cotton and

[8] Patrick McCully, *Silenced Rivers: The Ecology and Politics of Large Dams*, London and New Jersey: Zed Books, 1998 (1996), p.10.

sugarcane, etc. to be sold profitably in the international market. The Aswan Dams over the Nile in Egypt, and the 'Canal Colonies' of Punjab in India are two glaring monuments of commercial enterprise undertaken by early twentieth century colonialism. In Egypt and India, as also in the American West, the State encouraged consolidated large farms that produced commercial crops. Land regulations and policies of taxation were geared to facilitate the formation and successful functioning of such large-scale agricultural estates. This "great transformation" involved not only the forced eviction of the Egyptian *fellah* or small peasant and the indigenous population from their ancestral land, but also a fundamental transfer of power of decision-making from marginal communities, in favour of the ruling powers and big agricultural/industrial farm interests.[9] These modern structures, hailed as technological marvels and symbols of man's triumph over Nature, demonstrated that they could also act as means of exercising centralised rule, i.e. the rule of a few over many. They thus represent the contemporary arenas of struggle, of different and opposing class forces in combat, which often underlie a difference of worldviews, life-ways, and imaginations of the present and future society.

The idea of big dams was gaining currency among the Indian ruling classes in the 1950s, and particularly after the beginning of the planned period, even though the history of big dams in South Asia goes back to 1920s when the Mulshi Valley hydro-power dam was constructed near Pune by the Tatas to supply electricity to Bombay industries and amid protests by displaced tribal communities.[10] The

[9] For an absorbing study of the politics of the Aswan Dams, refer to Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity*, Berkley: University of California Press, 2002. Richard White recounts the changing fortunes of the Columbia River, and the native American communities on its banks with the introduction of reservoirs, and also commercial fishing of the Salmon; Richard White, *The Organic Machine: The Remaking of the Columbia River*, New York: Hill and Wang, 1995.

[10] Sanjay Sanghvi, *The River and Life: People's Struggle in the Narmada Valley*, Mumbai: Earthcare Books, 2000, p.37. Sanghvi, quoting Rajendra Vora's Marathi book *Mulshi Satyagraha*, wrote, "In 1921, the peasants in the prosperous Mulshi valley near Pune declared total opposition to the hydro-power dam to be built by the Tata Company. The peasants' organisation in the Maval area in Maharashtra raised concerns about displacement of the farming community, fertile land and well-settled villages. The questioned the claims of benefits of electricity from the dam to the Bombay industries at the cost of destroying agriculture. Leaders of the Mulshi peasants, like Senapati Bapat and Vinayak Bhuskuta confronted the 'capitalists' like Tata and vowed to protect the interests of peasants. They challenged the 'public purpose', the cost-benefit analysis of the dam, and asserted the priority of social good and the cultural rights of the larger community over the benefits of a few. They continued their opposition with novel methods, despite the fact that Gandhiji did not favour

big dams at that time were portrayed as the motor of economic growth, as the "temples of modern India". A series of big dams were constructed on the major rivers of the country with State investment, as India's big bourgeoisie pushed the state to make investments for infrastructure that involved enormous outlay of capital. These dams were aimed at providing electric power to the needs of the expanding industrial base. Providing irrigation facilities to the monsoon-dependent cultivation was another major objective.

Brahmaputra's Floods and the Regional Ruling Class

In Asom too, the *Report* of the *Flood Enquiry Committee* appointed by the provincial government's Public Works Department noted as early as in 1929 that The government was considering "methods of reducing the abnormal flood conditions by means of reservoirs or impounding areas", even though such methods were abandoned at that time as "impracticable."[11] The reshaping of rivers, however, was not entirely new even for the Brahmaputra Valley. At least one river called Bhogdoi in the undivided Sibsagar district and passing along the town of Jorhat was constructed by manually digging up its channel under the initiative of the Ahom State in the medieval period. Under British colonialism, works of such magnitude was scarcely attempted in the Valley, though the trope of "river improvement" was employed while undertaking the "correcting" the natural course of rivers, as was exemplified by the work taken up on the Kalang River in mid-nineteenth century.[12]

During this period the regional ruling classes of the Brahmaputra Valley were also gearing up towards introducing the idea of big dams in the river-system of the region. Construction of dams as a mechanism to provide protection and relief from floods was considered and came up for debate in 1940s. Appropriate measures to "deal with" the Brahmaputra were reflected in the exchanges that took place in the provincial House of Representatives as indicated by a resolution

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their stand. In 1924, Bapat declared *Atma Samarpan* (self-sacrifice) to oppose the dam. This was the first anti-dam people's movement in India…"

[11] Richard White, *The Organic Machine*, p. 11.

[12] See Chapter V: 'Imagining Improvement', *Rivers and History: Brahmaputra Valley in the Nineteenth Century*, M Phil Dissertation, JNU, 2005.

placed by one of its members in 1951. The resolution was aimed to mandate the provincial government for approaching the Government of India "to take necessary steps to train or otherwise deal with the river Brahmaputra in order to stop floods which are devastating the state almost every year causing huge loss to the agriculturists."[13] Though this resolution placed in the legislative assembly was withdrawn at the end of the debate, as it failed to muster the support of the ruling Indian National Congress party, it reflected the approach of the regional government towards the floods of the Brahmaputra in the middle of twentieth century. From this point of view, floods of the Brahmaputra and its tributaries were one of the major causes of the Valley's sorrows, the backwardness of its agriculture and the poverty of its peasantry. The rivers had to be controlled if agriculture in Asom was to be salvaged and improved. Broadly, it is this belief that has defined and State's approach and actions related to the rivers in the Brahmaputra Valley in the post-1947 period, to the detriment of both the upper riparian inhabitants on the hills as well as the people in the Valley. This approach was useful in strengthening the material and ideological edifice of the incumbent ruling elite, and until very recently this approach went on almost unchallenged. There is a need to historically outline the introduction and application of the concept of River Control in the Valley, as it has emerged as one of the most powerful tools for the State to control and extract the natural resources of the region. This was accompanied by a powerful ideological justification and defense of River Control, whereby floods in general were depicted as destructive and detrimental to people's livelihood in general and of agriculture I particular. It appeared that the rivers causing recurring destructive floods had to be controlled, regulated and stabilized through big structures and reservoirs.

Beliram Das, the MLA who proposed the above resolution, argued that Assam as a province was never deficit in food grains in the past. The cultivators of the region produced enough for the sustenance of the people, and even could export a part of the food grains to the neighbouring provinces. But in the recent past, he noted, "this surplus state has gradually become a deficit one" so much so that it

[13] 'Resolution regarding to train or otherwise deal with the river Brahmaputra in order to stop floods', *Assam Legislative Assembly Debates*, August-September 1951, Vol. II, No.15, Shillong: Assam Government Press, 1951, pp.838-853.

had become dependent on other regions for the import of foodstuffs. There was a situation of acute food shortage, which was previously unknown in the region. To him, "successive floods due to the rise in the level of the waters of the Brahmaputra have been the main cause for failure of crops and deficit in our state. The successive floods of the river Brahmaputra washed away crops and the cultivators could not harvest their crops in proper time."[14] As a result of the changed bed of the Brahmaputra due to the devastating earthquake, places lying along the banks of the Brahmaputra had been flooded. The strong currents of the river also had a role to play in damaging the crops, as the currents of the River Brahmaputra swept over the standing crops on the paddy or jute fields. Das asserted that "Unless and until proper steps are taken to train or control the waters of the Brahmaputra, we will be having floods every year and consequently we will not be getting crops."[15] He pointed out the effectiveness of embankments in protecting agricultural fields, but argued that a comprehensive river training programme needed to be undertaken in order to deliver the peasants of the Valley from their misery. Das admitted that he was aware how great a great task it was to train a river like the Brahmaputra, and the large amount of resources required for such undertaking. But since the prosperity of the whole province was related to the resolution of the flood question, he hoped that the Government of India (GOI) would not hesitate to offer the same. Comparing Asom with other provinces, he pointed out,

> The Government of India have taken up some projects in other states, like the Kosi project, the Damodar Valley or other projects involving crores of rupees. In other states as we have seen, such projects will help in reclamation of land to the extent of at least 3 lakhs acres. But here in Assam if we can train the waters of the Brahmaputra properly then lakhs and lakhs of bighas of land can be protected and the crops of the state can also be saved. So even if this will involve

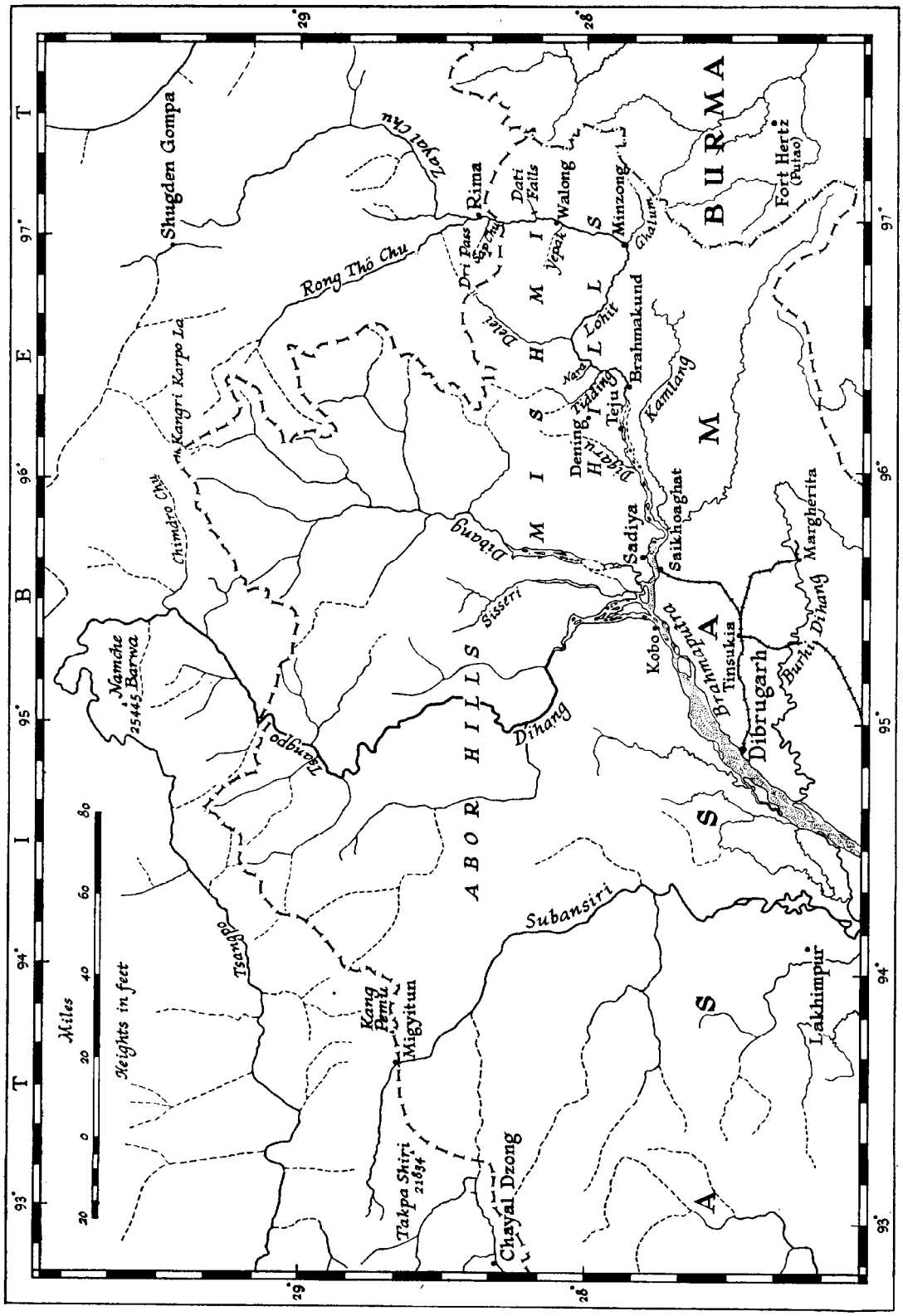
[14] 'Resolution regarding to train or otherwise deal with the river Brahmaputra in order to stop floods', *Assam Legislative Assembly Debates*, August-September 1951, Vol. II, No.15, Shillong: Assam Government Press, 1951, pp.838-847.
[15] ibid.

> a huge cost of money, the Government of India should see that the state of Assam is saved from the successive floods and loss of their crops every year remedied.[16]

After the massive earthquake of 1950, the River Brahmaputra had undergone a change in its characteristics, the results of which was the disturbances in its channel and the elevation of its bed. The government argued that "In the changed circumstances, some attempts were made by us to protect waters by constructing *bunds* in the areas affected by earthquake", but it was soon found out that the *bunds* were washed away soon after their construction. Therefore, it was stated, that "No protective measure of any permanent nature to train the river Brahmaputra can be made now."[17] The impediments to a major river-training project were identified to be the constraints put by financial limitations and lack of expert personnel to carry out the task in addition to the "unstable nature" of the rivers that prevailed in the years after the earthquake.

Haladhar Bhuyan, another member of the Assembly outlined another aspect of the question while taking part in the debate. He argued that more than the natural causes, it was the government's "indiscreet policy" of settling lands along the banks of the Brahmaputra which had accentuated the problem of destructive floods. In the past the banks of the rivers were covered by forests, after these areas were brought under settlement, the forests were also destroyed. Because

[16] 'Resolution regarding to train or otherwise deal with the river Brahmaputra in order to stop floods', *Assam Legislative Assembly Debates*, August-September 1951, Vol. II, No.15, Shillong: Assam Government Press, 1951, pp.838-847.
[17] ibid.



The Catchment Area of the Brahmaputra Affected by the Earthquake of 1950

(Source: F. Kingdon-Ward, 'Aftermath of the Great Assam Earthquake of 1950', *The Geographical Journal*, Vol.121, No.3 [September 1955], p.291)

of the forests, flood-water could not pass across them in speed, and thereby acted as buffers between the rivers and the villages inland. Moreover, with a very few man-made impediments on the river's natural path of drainage in the form of embankments, dykes, etc., floods in general used to remain on the fields only for three to four days' duration. "This was natural, and since there were miles and miles of forests on the Brahmaputra, floods did not trouble the villages much, and whatever water percolated to the villages was in fact beneficial to the agriculture", Bhuyan argued.

The government was accused of not weighing the consequences of making land settlements in those forested areas close to the rivers, rather than preserving the protective forest cover on the banks. This, he felt, resulted in the increase in the magnitude of destruction caused by floods in the Valley. For Bhuyan, an effective way of countering the effects of floods was to undertake re-forestation programmes along the banks of the Brahmaputra of at least a quarter-mile width. "The flood water passing through this forest cover will raise the level of the banks, and after a gradual gain of height the spilling of the bank would be stopped completely", Bhuyan suggested.[18] According to him, only after this step must any other measure for river control needed to be considered for implementation, not to substitute but to supplement this work. The efficacy and benefits of embankments as a measure of flood control too came under question and criticism in the debate. As J. S. Hardman, a member of the house noted,

> It has been accepted that the *bunding* of the Brahmaputra will be too expensive to execute as a whole. But what is the effect of *bunding* a portion of the river? It means that we give immunity to particular areas and submerge the remaining areas far deeper than they would otherwise have been flooded. In many places throughout India *bunding* has been carried out and I believe it is the accepted expert opinion today that unless there are important towns to be protected, it

[18] ibid.

'Lohit River below Rima being Filled Up with Sand'
(Source: F. Kingdon-Ward, 'Aftermath of the Great Assam Earthquake of 1950', *The Geographical Journal*, Vol.121, No.3 [September 1955], p.297)

'Dibang Valley: Forest Stripped from Hillsides in Earthquake'

(Source: F. Kingdon-Ward, 'Aftermath of the Great Assam Earthquake of 1950', *The Geographical Journal*, Vol.121, No.3 [September 1955], p.298, Photo: N. A. B. Warner)

> inexpedient to try and artificially control a river in this manner as the benefit of one area becomes the misfortune for another. It may be urged that flooding of the Brahmaputra is an inevitable misfortune which we cannot avoid.[19]

In spite of the reservations about embankments as an appropriate flood control measure, the provincial government advocated and constructed them with fervor during the second half of the nineteenth century. These flood control structures came up in great succession and all across the Valley from 1950s onwards, particularly after the destructive floods of 1954. One of the reasons and justifications of these works were the devastating floods that occurred at regular intervals during this period, particularly in the years 1954, 1962, 1972, 1977, 1984, 1988, 1998, 2002, 2004 and 2007.[20] Apart from floods, nearly 400,000 hectares of land has been estimated to be eroded by the rivers in the Valley between 1954 and 1986, rendering more than 90,000 families homeless.[21]

It may be worth mentioning here that works of great magnitudes pertaining to flood-protection were taken up by the State in the Brahmaputra Valley in two periods. The first period of intensive work was carried out under the aegis of the Ahom and Koch States in the 15th to 17th century, while the second period corresponds to the second half of twentieth century. During the colonial regime, only a few major works related to flood-protection was taken up by the State, leaving it to the peasants and private individuals to protect their fields and property with their own contributions of money and labour in constructing embankments.

[19] Speech by J. S. Hardman, 'Resolution regarding to train or otherwise deal with the river Brahmaputra in order to stop floods', *Assam Legislative Assembly Debates*, August-September 1951, Vol. II, No.15, Shillong: Assam Government Press, 1951, pp.838-847.
[20] ibid.
[21] ibid.

From Flood Control to River Control

It is a generally accepted that the great earthquake that shook the region in 1950, which was even higher in intensity than that of 1897, greatly altered its topography and river-regime. It has been said that as a result of this, floods have not only become more frequent but also brought more devastation and misery to the people of the Valley. As an official report prepared a few years after the earthquake noted, "Situated between the eastern Himalayas and the Indo-Burmese Range, Assam which covers the area of the heaviest rainfall in the world used to have periodical floods in the past. These floods used to occur at intervals of a few years so that people had some respite in between these periodic attacks. *But floods have become an annual visitant since the Great Earthquake of 1950, which has severely disturbed the riverine system*. Unlike in the past, more than one flood now occur in the course of the same year."[22] Similarly, another Assam government report from the same period stated, "Since the Great Earthquake of 1950, flood has become a common phenomenon in the State of Assam."[23] It was found that due to the earthquake the course of several rivers underwent changes and the beds of the rivers in the region had become shallow due to deposit of silt brought down from the hills devastated by landslides. Such rivers then lose the carrying capacity of water during the monsoons, and even a small rise in the water level can result in the river waters spilling over their banks and damaging the outlying fields and habitations. "This has resulted in the occurrence of flood with a distressing frequency, every year, during the rains."[24]

> It is also known that a typical alluvial river as described above cannot maintain a channel section which is capable of carrying the flood discharge within its formed banks. This is particularly true where the rainfall is concentrated within the monsoon months, where the maximum intensity of rainfall in relation to average rainfall is large and the silt charge during a high flood in the river is high. All these conditions apply in case of the Assam rivers. The position being as

[22] *Appendix III: A Note on the Damage caused by floods in Assam during 1954-55 and relief measures undertaken or proposed*, Shillong: Assam Government Press, 1956.
[23] *Note on the Damage Caused by Flood and Erosion in Assam during 1955-56 and Relief Measures Undertaken or Proposed*, Shillong: Assam Government Press, 1956, p.1.
[24] ibid., p. 1.

> described above, floods in Assam even in pre-earthquake times were frequent and damaging. Since the earthquake of 1950 however conditions appear to be progressively worsening.[25]

The rivers frequently changing their course, particularly in the North bank of the Brahmaputra, were also identified as another factor that caused flooding in their respective valleys. "Any spill channel that may form during a high flood by scouring out the river bank goes on developing and the deeper drainage channel draining the adjacent valley cuts back through gully erosion to catch up the river through the spill channel and the river changes its entire course into the adjacent drainage channel creating new flood problems in the valley."[26] Such a phenomenon was noticeable in case of the rivers such as Champamati, Pagladiya, Mutonga, Sukla, Brahmajan, Dhansiri and Jiadhol, all tributaries of the Brahmaputra. Moreover, "Choking of river channels resulting in inundation of extensive areas in their basins is another phenomenon which is prevalent in a number of cases. This happened occasionally prior to the earthquake but has been very common in north-eastern Assam after the earthquake." For instance, Singara, Kakoi, Dirgha, Jiadhol, Sissi, Balijan, Dholla, Dibru, Kulsi and Noa Dehing rivers had their channels blocked for natural reasons, making the water they carried to spill over their banks and inundating the adjoining areas. There were other important factors causing the devastating floods. "It is a known fact that the dry weather flow of all rivers has diminished appreciably within living memory. Correspondingly the flood discharge during the monsoon months have increased. Progressive opening up of unclassed forest areas and grass land in the submontane areas for cultivation must have contributed its share to this. How far deforestation in the hills and jhumming are responsible for increased flood discharge is a matter of detailed study."[27] Added to the above factors was the effect of railway and road embankments on the natural drainage of rivers in the

[25] *A Note on the Damage caused by floods in Assam during 1954-55 and relief measures undertaken or proposed*, Shillong: Assam Government Press, 1956.
[26] ibid.
[27] ibid.

both banks of the Valley, which held up the flood-water in many areas causing local inundations and aggravated the flood damage to crops in those areas.[28]

The combined affects of the natural and social factors leading to destructive floods were severely felt in the summer of 1954. It was said that in that year floods exceeded all past records with three major floods in quick succession within three months, each higher than the last. The first major flood occurred in the middle of June 1954, damaging the *aus* paddy and jute crops. This flood subsided by the end of June when the second and even higher flood occurred in the beginning of July 1954, resulting in the complete destruction of the few remaining patches of *aus* and jute in the flooded areas. "Deprived of their aus paddy and jute crops the people were hoping to grow more Sali paddy for their subsistence after the subsidence of the flood." Subsequently, the third and severest of the three floods occurred on the 24 August 1954. The level of this flood crossed the highest recorded flooded-level of 1931 in several places on the Brahmaputra. It was said that this latest wave "completed the destruction of whatever property the unfortunate people had left after the two earlier floods and rendered them totally destitute."[29]

In this series of floods in 1954, major parts of the districts of Lakhimpur, Sibsagar, Darrang, Nowgong, Kamrup and Goalpara covering an area of over 12,000 sq. miles were inundated. According to the official statistics, the floods badly affected 255,873 families consisting approximately of 1,279,365 persons. In addition, 7,500 families with approximately 37,500 persons lost their homesteads and cultivable lands due to erosion. Loss of human life due to the floods was estimated to be seventeen. Approximately 65 percent of the total *aus* paddy and 53 percent of the total jute produced in the province were destroyed.[30] Moreover, a considerable proportion of the *sali* crop was lost either because seedlings were destroyed or transplantation could not be carried out due to the third flood. Apart from the proposals of building additional flood-

[28] *On the Damage Caused by Flood and Erosion in Assam during 1955-56 and Relief Measures Undertaken or Proposed*, Shillong: Assam Government Press, 1956.
[29] *Appendix III: A Note on the Damage caused by Floods in Assam during 1954-55 and relief measures undertaken or proposed*, Shillong: Assam Government Press, 1956.
[30] ibid.

protection works, the government admitted that "The agriculturalists living in the rural areas will be provided with homestead lands and agricultural lands for cultivation as well as house building advances and subsistence grants." Another important aspect of the varied impact of floods was also brought out in the report, which noted that "*About one third of the affected families belong to the scheduled castes and scheduled tribes who will not be able to repay if the entire amount is given as a loan.*"[31]

The floods of 1954 also resulted in massive erosion of the inhabited and cultivated banks of the rivers. As has been noted, "a large number of families have been more or less affected by erosion and in some places houses and properties have also been washed away. The river Aie, as in the last year, in the district of Goalpara was also in high flood and washed away about 400 bighas."[32] The official figures of cattle lost stood at above three thousand, while the area eroded was reported to be 17,617 acres, 354 villages and 7,791 families were affected by erosion.[33]

The immediate response of the provincial government in the aftermath of the series of floods in 1954 was the construction of earthen dykes and embankments along the Brahmaputra and its tributaries. Flood control measures carried out in the winter season of 1954-55 included 125 miles of dykes on the Brahmaputra in the districts of Goalpara, Kamrup, Darrang, Sibsagar and Lakhimpur, over 400 miles of tributary dykes in Kamrup, Nowgong, Darrang, Sibsagar, Lakhimpur and Cachar districts, Dibrugarh town protection works against erosion, and so on.[34]

The provincial legislature replaced the Assam Embankment and Drainage Act of 1941 with the Assam Embankment and Drainage Act, 1953 (Assam Act of I of 1954), as the former was seen as an impediment to expeditiously implementing embankment, irrigation and drainage works in connection with flood protection.

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[31] ibid. Emphasis added.
[32] *Note on the Damage Caused by Flood and Erosion in Assam during 1955-56 and Relief Measures Undertaken or Proposed*, Shillong: Assam Government Press, 1956, p.1.
[33] ibid.
[34] *Appendix III: A Note on the Damage caused by floods in Assam during 1954-55 and relief measures undertaken or proposed*, Shillong: Assam Government Press, 1956.

The Act of 1941 required the preparation in advance of detailed schedules and contour surveys as well as the assessment of the possible benefits of such works. However, this provision was dispensed with in the new Act with the plea that it "generally entails elaborate process involving time factor".[35] The government argued that "due to the emergent situation created by the great earthquake of 1950 and subsequent high floods of 1952 and 1954, certain embankment and irrigation works had to be taken up urgently without strictly and meticulously following the provisions of the Act [of 1941]".[36] In the name of simplification, urgency and immediacy of implementing such works, all avenues were now opened for undertaking rapid construction of flood protection works, primarily through embankments, admittedly without subjecting these projects to scientific study, planning and execution. Moreover, through another provision of this Act, the government acquired the power to levy "water rate or betterment cess" with retrospective effect from the people of the region where a government project for drainage, irrigation, or flood protection was or was to be carried out.

It was proposed that in the season of 1955-56, more than a hundred miles of Brahmaputra dykes and 242 miles of new dykes on its tributaries were to be constructed.[37] While as per the approach of the government embankments provided a ready solution for protecting the villages and towns along the rivers and in their floodplains, the resettlement of destroyed villages also posed a big challenge for the provincial government.

> *The rehabilitation of the uprooted families due to flood and erosion is an uphill task though an important one, due to non-availability of waste lands for rehabilitation and this has become a headache to Government*. For this purpose huge amounts will also be required both as rehabilitation loan and grant. The exact amounts that will be required for rehabilitation purposes could not be

[35] 'Assam Embankment and Drainage Act, 1953 (Assam Act I of 1954)', B. P. Saraf and Ashok K. Saraf (eds.), *Statutes of North East India*, Vol. I, Guwahati: GLR Publishing House, 1984. The 'Statement of Objects and Reasons' section of the Act declared, "Under conditions prevailing in Assam and particularly in the absence of contour surveys, it is not always possible to prepare correctly a detailed schedule of lands likely to be benefitted under a scheme before a scheme is actually executed."

[36] ibid.

[37] *Appendix III: A Note on the Damage caused by floods in Assam during 1954-55 and relief measures undertaken or proposed*, Shillong: Assam Government Press, 1956.

> determined yet as both homestead and cultivable lands will also have to be purchased or acquired from private concerns for the affected families where Government land will not be available… a considerable amount of land revenue and local rate will have to be remitted for those people who have lost their crops.[38]

The priority of the government in the following decades to counter the annual floods by constructing more and more earthen embankments is reflected in the 'capital outlay' of the Flood Control and Irrigation Wing of the Public Works Department. In the financial year 1962-63, the single-largest head of expenditure was 'Flood Control' primarily through embankments for which out of a total budget of Rs.156 lakhs, nearly a half or Rs.70 lakh was earmarked.[39] Similarly, out of a total capital outlay of Rs.4.32 crores for the Flood Control and Irrigation Department under the fourth Five Year Plan in 1966-67, Rs.3.15 crores were set aside for embankment and drainage work intended for flood-control, while the remaining Rs.1.7 crore was spent on medium and small irrigation projects.[40]

As reported by one government document, the works executed up to March 1985 in the Brahmaputra and Barak Valleys included construction of 3,433 kilometers of embankments, 494 kilometers of drainage channels, protection work of 35 towns and 90 villages and construction of 391 sluices in the embankments. As per government estimates, these flood control works provided protection to an area of nearly 13.27 lakh hectares out of a flood prone area of about 19 lakh hectares in Brahmaputra Valley.[41] This process of building embankments continued in the succeeding period, and another thousand kilometers were added in the next twenty years. By the first decade of the twenty-first century, Asom had 4,446 kilometers of embankments of which 3,750 kilometers were in the Brahmaputra Valley, 854.19 kilometers of drainage channels, 86 big sluices

[38] *Note on the Damage Caused by Flood and Erosion in Assam during 1955-56 and Relief Measures Undertaken or Proposed*, Shillong: Assam Government Press, 1956, p.1.
[39] 'Detailed Estimate of Revenue and Expenditure for the Year 1962-63', Assam Public Works Department, Flood Control and Irrigation Wing, Gauhati: Assam Government Press, 1963.
[40] 'Detailed Estimate of Revenue and Expenditure for the Year 1966-67', Assam Public Works Department, Flood Control and Irrigation Wing, Gauhati: Assam Government Press, 1967.
[41] *Master Plan of Brahmaputra Basin, Part I, Main Stem*, Brahmaputra Board, Government of India, Ministry of Water Resources, 1986, p.14.

and 694 anti-erosion structures.[42] Of these, a major portion was constructed along the northern and southern banks of the Brahmaputra totaling a length of 934 kilometers as of 1985.[43] It was however admitted that "Construction of embankments accentuate drainage problem in the countryside." Therefore, to mitigate it, 494 kilometers of drainage channel and 391 drainage sluices were constructed. "Channel improvement" through drainage and dredging of the river bed was attempted on the Brahmaputra downstream. However, it proved to be an expensive exercise and did not yield the desired results.[44]

In addition to the protection of the countryside and the cultivated fields, another concern for the government was to safeguard the townships on the banks of the Brahmaputra from the floods, and particularly from the danger of obliteration caused by erosion after 1950. One of the most important towns said to be on the verge of extinction was Dibrugarh in the undivided Sibsagar district, though large scale erosion was not unknown in the region. As E. A. Peal observed way back in 1870, "During a sudden rise lately at the end of this year, several thousand acres of land were carried away near Dibrooghur alone, and the steamer ghat suddenly taken 3 miles nearer the station."[45] After the Indian government decided to accept the measures recommended by the Iengar Committee for the protection of the Dibrugarh town against erosion of the Brahmaputra, the provincial government passed 'The Assam Betterment Fee and mooring Tax (Dibrugarh) Act 1953'. One of the recommendations of the Iengar Committee was to construct a four mile long stone revetment along the southern bank of the Brahmaputra adjacent to the town as a flood protection work. According to the Act, the definition of 'Flood Protection Work' is to encompass any spur, embankment, revetment, or drainage work or such construction for the protection of the Dibrugarh town from the erosion and floods of the Brahmaputra. The condition of financing the project was that while the central government was to provide a grant covering half the cost, the other half was to

[42] 'Assam's Sorrow', *Frontline*, Vol. 25 (20), September 27 to October 10, 2008.
[43] "These are not continuous, but have constructed only in flood prone reaches". *Master Plan of Brahmaputra Basin, Part I, Main Stem*, Brahmaputra Board, Government of India, Ministry of Water Resources, 1986, p.139.
[44] ibid., p.139.
[45] E. A. Peal, *The Canoes of Assam*, 1870, M.S., India Office Library, London.

be given to the provincial government as interest-free loan, to be collected through an annual levy for twenty years from the project's 'beneficiaries'. Empowering itself with the Act, the government not only proceeded to collect the charge from the town's inhabitants, but also levied "a mooring tax from steamers or flats mooring within 400 yards of the revetment".[46] In one of the early instances of making the 'public' in the Valley directly pay in the name of 'Betterment Fee' for the 'public works', the government went on to specify four areas or 'belts' parallel to the river, the inhabitants of which were liable to pay the above levy. As per the Act, "All areas within any of the belts shall be deemed to be benefited irrespective of the nature and quantum of the actual benefits accruing to any particular plot of land."[47]

In spite of the awareness that the embankments and other "flood protection works" were not carried out as per well thought out plans and after adequate studies, the provincial government was keen to continue their construction.[48] Though it advocated the possibility and the necessity of the big dams as a means to put a check on the annual floods, the government's opinion was that "a large scale control of Assam's rivers through methods such as construction of dams, etc., may, of necessity, be a somewhat long drawn out process, despite the priority that may be accorded to it by the state and central governments. Meanwhile, *something has to be done to arrest the increasing inundation by the Assam's rivers in general and by Brahmaputra in particular*."[49] Similarly, the government's opinion was that "While the construction of dams has, of necessity to await collection of data and detailed investigations and reports by geologists, etc., *the work on the dyke along side the Brahmaputra can be taken up relatively quickly*." The provincial government hoped that this pragmatic, ad-hoc and unplanned approach at building flood protection and anti-erosion structures was in the future was to lead to fully embanked rivers that run along their entire

[46] *Assam Gazette*, Extraordinary, 18 February 1953, Shillong: Assam Secretariat Press, p.26.
[47] 'The Assam Betterment Fee and Mooring Tax (Dibrugarh) Act 1953 (Assam Act XIII of 1953)', B. P. Saraf and Ashok K. Saraf (eds.), *Statutes of North East India*, Vol. I, Guwahati: GLR Publishing House, 1984.
[48] "the state government are carrying out embankment and drainage measures all over the state. *This, however, have not been so far carried out in a very consolidated and coordinated manner*." ibid.
[49] ibid.

course in the valley, and this was to supplement the dams that would be constructed upstream. As the government argued,

> It appears to the state engineers that both as an immediate measure of relief and also to supplement the river control measures to be taken up by way of construction of dams, etc., embankment projects need to be up so as to have running embankments along the full course of the problem rivers including the Brahmaputra, on both banks. The embankments will run from a point in the foothills to the confluence with a bigger river or to a point on the borders of the state as the case may be. Considerable stretches of embankment already exist. The programme suggested envisages completion in the remaining low-lying stretches, after proper survey, and strengthening of the existing bunds wherever necessary.[50]

The argument that recurring floods are responsible for the dismal agricultural productivity in the region continued to be articulated in government's documents and official discourse, as is the case with the provincial government's memorandum to the agriculture minister of GOI in 1975. It stated, "Whatever is being done to spread the cultivation of High Yielding Varieties, with improved practices, the fact remains that both the autumn and winter paddy crops remain subject to the vagaries of the floods. The aim has been to change the old cropping pattern so as to bring substantial acreage under crop which is cultivated in the flood free season. With the help of the irrigation department, who are taking up a big programme in the chronically flood affected areas, which is about 12% of the net cropped area, this change in cropping pattern is sought to be brought about."[51] The Kharif (sali) paddy covers 67% of the paddy area and 60% of the total cultivable area while Rabi (ahu) paddy covers 28% of the paddy area and 24% of the total cultivable area in 1974-75.[52]

While the 'immediate' and 'short term' tasks of building embankments was thus taken up primarily by provincial government, the building of mega dams and

[50] ibid.
[51] 'A Note on position of Irrigation in the Context of Emergency', 1975', 9 August 1975, ASA.
[52] ibid.

structures on the streams were left to the Indian bureaucratic capital through the interventions of the GOI. This arrangement and division of work served the interests of both the regional as well as the Indian ruling class. Through works of flood protection and mitigation it was expected on one hand that marginal embankments properly planned and constructed would control inundation to a great extent. This was in spite of the fact that the suitability of constructing embankments, and later of reservoirs, was contested from within the scientific and technical establishment of the state. As has been noted in the *Master Plan* for the Brahmaputra, "Opinions have differed from state to state and from time to time in the twenties and thirties of the present century regarding effectiveness of embankment as a flood control measure. Opinion in Assam like other flood prone states in the country was against the construction of embankments, but gradually it veered round in its favour, particularly after 1954 when the National Flood Control Policy was formulated by the GOI for a programme in three phases, viz. the immediate, the short and the long term."[53]

On the other hand, the construction of "flood detention reservoirs" in the upper reaches of the principal rivers and their tributaries of the Valley was to "go a long way to mitigate the disastrous effects of the floods in the valleys and lower reaches by holding up, for gradual release, very substantial quantities of flood discharge." Improvement of navigation in the rivers was also envisaged as a beneficial outcome of dams, enabling the controlled release of water during the dry months of the year when the rivers were too shallow and inadequate for water transport.[54]

[53] ibid.
[54] ibid.

Big Dams as the 'Solution'

> *The disastrous floods of 1954 and the tragedy and sufferings that followed in the wake of these floods pointed to the need for tackling the flood problem on the basis of national emergency. The Union Minister for Planning and Irrigation and Power placed before the Parliament, on 3 September 1954, two statements regarding 'Floods in India: Problems and Remedies' and the 'Floods in the Country'. These statements brought out for the first time the national policy regarding the problems of floods and their remedies in a comprehensive manner.*
>
> *The Brahmaputra, one of the largest rivers of the world, has been a problem river for long. Flowing through the narrow valley of Assam, it has been causing great damage, year after year, by flooding vast areas, eroding away valuable land, and creating drainage congestion. Yet with its abundant water resources, the river has the capacity of bestowing enormous benefits, particularly of hydropower, irrigation, and navigation. So far only a fringe of these benefits has been secured.* [55]

After 1947, Indian bureaucratic capital in the North East was looking for newer avenues of investment, primarily through the exploitation of the hitherto untapped natural resources. Petroleum was already a major sector of investment for companies with British financial investment, which was up and running from the beginning of the twentieth century. From 1947 itself, the regional ruling class was looking up to the assistance of the central government to mitigate the effects of the Brahmaputra floods and erosion. As one of its reports noted,

> As regards short and long term measures for control of floods in the state of Assam, these are, in any case, beyond the resources of the state. Some preliminary measures which are to be taken by the state govt. are being financed from the state's resources for the time being, but it is hoped that the central govt. will take a direct hand in the solution of the flood problem of the state… This, in the given circumstances, would imply that the central govt. should by and large meet the overall expenditure on flood control.[56]

After the high floods in the Brahmaputra and its two tributaries Dehing and the Kopilli in 1946, the state government requested the Central Water and Inland Navigation Commission (CWINC) of the Government of India (GOI) to suggest

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[55] *Master Plan of Brahmaputra Basin*, *Part I*, *Main Stem*, Brahmaputra Board, Government of India, Ministry of Water Resources, 1986, p.50.

[56] *Note on the Damage Caused by Flood and Erosion in Assam during 1955-56 and Relief Measures Undertaken or Proposed*, Shillong: Assam Government Press, 1956. The following section is based on this document.

"the best way how to tackle the flood problems of the Kopilli in particular and of Assam in general." In response, S. C. Majumdar and Man Singh, members of CWINC and Central Water and Power Commission (CWPC) respectively, were sent to Assam in May 1947. After touring the Brahmaputra Valley and discussing with local officers, these experts made a series of recommendations for the short term and long term preventive measures. In the short term, they suggested the provision of adequate openings and aqueducts in the existing railway and road embankments as well as "improvement of spill and drainage channels" in the valley in order to reduce and minimize the obstructions to the natural course of the floods. Along with improvement of the catchment area of the major rivers through systematic afforestation and gradual substitution of *jhum* cultivation with terrace cultivation, the experts recommended as long term measures the establishment of a River Commission to coordinate and carry out scientific studies and systematic data collection which would lead up to the "[C]onstruction of flood detention multi-purpose dams."

In October 1947 Man Singh, the expert sent by the GOI, came back to the valley for another visit. After a study of maps and discussions with local officers, the team came to the conclusion that almost all the tributaries of the Brahmaputra and the Barak rivers "could be developed for multipurpose schemes of flood control, hydro power, navigation and to some extent, irrigation."[57] The team recommended conducting preliminary investigation to the following projects for multipurpose dams. The first priority was given to the construction of a 500 feet dam across the Dihang River, a major tributary of the Brahmaputra, which would have an installed capacity to produce 2 million kilowatts of electricity. As the second priority, a 480 feet high dam across the Barak was recommended, generating electricity of 1.5 million kilowatts. A 400 feet high dam across the Manas River in the Brahmaputra valley was third in the priority list, with an estimated capacity of 1.25 million kilowatts. Lastly, a dam across the Subansiri was suggested, which could generate 90,000 kilowatts once completed.

[57] ibid.

An ad-hoc committee constituted by a group of engineers with the government of India reviewed these proposals in May 1948, and came to the conclusion that in view of shortage of trained personnel and necessary equipments, the rivers Manas and the Dihang alone would initially be taken up for investigation. The Central Water and Power Commission (CWPC) of the GOI undertook preliminary investigations for the two rivers and established a Division for the purpose. The investigations, however, were cut short by the earthquake of 1950, since extensive landslides occurred in the Dihang catchment area which choked the river gorge temporarily and silted up the river bed. The investigation of the Manas River in addition faced another hindrance in the form of Bhutan government's inability to provide the "necessary facilities". As such, only "routine hydrological data" were collected for the two rivers. Significantly, the Geological Survey of India at the same period came up with an objection to the construction of dams on the Dihang "due to the instability of the regime."[58]

In April 1953, Man Singh, the member of the CWPC once again visited Asom and made aerial surveys of the Jia Bhorali and Subansiri rivers. Man Singh was "favourably impressed" with the possibilities of building dams on both these rivers "for better control of floods and generation of hydro power." But the problem of scientific studies and inadequate data hindered any concrete planning. This problem was also highlighted by the Ienger Committee constituted by the GOI which visited the province in early 1950s to "study its problems", including the question of floods. It was therefore noted in 1954 that "The Committee was struck by the paucity of data on which river valley control may be planned. They therefore recommended that a River Investigation Division should be set up under the CWPC to collect the necessary data for planning of river control."[59]

In November 1953, in a meeting held in New Delhi where the agencies of the central as well as the provincial government participated, it was decided to first conduct preliminary studies so that the data necessary for any feasibility

[58] *Note on the Damage Caused by Flood and Erosion in Assam during 1955-56 and Relief Measures Undertaken or Proposed*, Shillong: Assam Government Press, 1956.
[59] ibid.

assessment could be generated, and thereafter to prepare reports on the possibility of building dams. The following rivers were taken up for study in an order of priority: first, the Kopilli valley comprising of three dams- Kopilli, Diyung and Barpani; second, Pagladiya; third, Subansiri; fourth, Jhanzi; and fifth, Buri Dehing. It was stated that the first three projects were meant primarily for flood control, while the fourth would mainly be for power generation, and the fifth would be a multipurpose dam for flood control, power and navigation.

Though in view of the above considerations, the preliminary data relating to these rivers were collected in the 1950s, which included "data regarding flood protection, irrigation and power needs, etc., along side with data relating to the areas which could be reclaimed by control of rivers, financial loss accruing to government as a result of floods, potential revenue that might accrue to government as a result of reclamation", there was hardly any corresponding data related to a few other major north bank tributaries of Brahmaputra, i.e., the Dibang, Dehang and Lohit. One of the reasons for this lack of investigation was that the provincial government till the mid1950s was quite unsure as to whether "control projects in relation to these rivers" could at all be taken up given the geological instability and high seismicity of the region, along with the magnitude of the work involved, which was beyond its means. However, it was soon proclaimed by the government that "the North-Eastern rivers, viz., *Dibang, Dehang and Lohit, etc. are the rivers which in the main are responsible for the Brahmaputra floods* along with other north bank tributaries of the Brahmaputra." The government therefore came up with the opinion that

> North Eastern rivers, [therefore,] require to be studied with a great deal of urgency from the point of view of flood control, *despite the geological and other factors which might be against them*. It seems to the state government that it is imperative to do something for the control of these rivers if heavy devastation by the Brahmaputra along its entire course has to be avoided. Control of the Lohit will avoid the periodical inundation and disruptions of the railway system between Doom Dooma and Saikhowaghat and the National Highway as well. It is even felt that to restrict expenditure, control of these rivers may be taken up for the time being only from the flood control point of view, leaving other aspects of

> multipurpose development such as hydro-power, etc., to be tackled in due course. The state government feel that examination and control of the north-eastern rivers is a problem which should be given priority 'One' by the government of India's experts.[60]

After examination of the available data, CWPC was subsequently asked to prepare reports on the feasibility of building reservoirs on four rivers: the Kopili, Barak, Subansiri and Noa Dehing. The Geological Survey of India was at the same time to be consulted regarding the viability of big dams on the Dibang, Lohit and Jia Bhorali rivers, "so that the further steps may be taken to evolve priorities for river control measures."

The provincial government expressed its keenness to build up adequate technical expertise and mechanism in Asom for collection of data, experimentation and drawing up of short and long term schemes for "river control." One of the initial steps was the formation of River Investigation Divisions, which was later brought under the River Investigation Circle for the region. However, the provincial government was not only dependent on the GOI for providing the financial resources for running these institutional mechanisms for collection of scientific data and for planning, but it was expected that "The central government will also have to assist the state government in finding necessary technical personnel to the extent required for the River Investigation Circle."[61] The provincial government admitted that it was extremely short of technical personnel for its needs in the spheres "other than river control, and in the sphere of river control there are not many personnel with the requisite training and experience." Therefore it assumed that the "whole work of river control" out of necessity was to be carried out under the guidance and supervision of the technical experts of the CWPC. The provincial government of Asom was of the expectation that the "central government's engineers should give their advice on this suggestion of running embankments envisaged to give

[60] *Note on the Damage Caused by Flood and Erosion in Assam during 1955-56 and Relief Measures Undertaken or Proposed*, Shillong: Assam Government Press, 1956.
[61] ibid.

immediate and at least partial control of problem rivers, after studying if necessary, the experience of such embankments in other countries also."[62]

Given that the 'problem' at hand appeared to the provincial government to be a "very gigantic one which has to be tackled very largely with central assistance both technical and financial", the institutional mechanisms to "deal with the problem" were also envisaged in a way in which the GOI would play the primary role. So the suggested constituents of the proposed Assam Rivers Commission included the CWPC, Planning Commission, Ministry of Finance, Railway Board along with the provincial government. As for the Commission,

> This commission should be made responsible for overall direction of investigation relating to the flood problem, conducting the experiments for control, preparation of short and long term schemes for solution of the flood problem, and for ensuring prompt and effective implementation on an emergency basis. The reasons for representation of the CWPC, the Planning Commission and the finance ministry are obvious, inasmuch as the state requires to the fullest possible extent, the technical and financial assistance of the government of India. The reasons for the representation of the railway board is that without proper coordination of the railway embankments and openings for waste discharge, etc., with the river control measures to be taken up in the state, the full benefits of the latter will not be achieved.[63]

Till the floods of 1954, the Public Works Department under the provincial government was the agency which carried out the flood protection works even though its main tasks included the construction of "buildings, roads and bridges". It was not a department which had specialized expertise on flood control: "Flood control received less attention and the Department did not develop the expertise necessary for handling the problems of a very large river of the size of the Brahmaputra."[64] However, the high floods that year led to the establishment of a separate department of flood control and irrigation within the provincial

[62] ibid.
[63] ibid.
[64] *Master Plan of Brahmaputra Basin*, *Part I*, *Main Stem*, Brahmaputra Board, Government of India, Ministry of Water Resources, 1986

government, which was to be the specialized nodal body for carrying out flood control and relief measures in the valley as far as the short term tasks were concerned. Later in 1970, a three tier technical set-up for giving the department "high level policy guidance" through consultation was put in place. This consultative mechanism involved the Brahmaputra Flood Control Board (BFCB), the Brahmaputra Flood Control Commission (BFCC), and the Board of Technical Consultants. "The Brahmaputra Flood Control Commission was a whole time organization constituted by the government of Assam on the advice of the GOI to work within the broad framework of policy directions issued by BFCB. The Board of Technical Consultants was chaired by an eminent engineer, the members being the heads of the service organisations like CWC, IMD, GSI, a professor of the Assam Engineering College, Director of Soil Conservation, Assam and members of the BFCC."[65] Among these organisations, the BFCB was formed as a high powered policy-making body to decide priorities in the implementation of the planned flood-control schemes, in sanctioning estimates and approving allocation of funds.

These official bodies were in a decade to become the cornerstone for establishing the Brahmaputra Board under the control of the GOI. But even before these institutions came up, the GOI was actively considering the 'long term' measures such as the multipurpose dams during the three decades that followed till the establishment of the Brahmaputra Board. A series of central government's committees studied the "flood problem" in the region in this period, which included the High Level Committee on Floods in 1957, Minister's Committee on Flood Control in 1964, Minister's Committee on Flood and Flood Relief in 1972, Study Group for the Erosion Problems of the Brahmaputra in 1964, and Committee on Scientific Flood Forecasting in the Country.

Though the construction of big dams in the region was actively considered and recommended by the committees and study groups that discussed the question of floods, apart from the immediate and 'short term' measures at flood control, no big project was taken up immediately. More than three decades elapsed for

[65] ibid.

flood control to enter the phase of river control, a transition that was most vividly marked by the formation of the Brahmaputra Board by an act of the Parliament in September 1980. As the Board's publication notes, "Nearly three decades have elapsed since the immediate phase, as visualized in 1954, was over. The short term phase comprising flood control measures such as construction of embankments, channel improvements and protection of towns is continuing since Second plan." According to the administrators and experts of the Board, "These works now require to be stabilized."[66] With the coming of the Board, the Brahmaputra Flood Control Board (BFCB) constituted by the GOI in May 1970 was dissolved with effect from March 1982. The provincial government too formed a Technical Advisory Committee to replace the Board of Technical Consultants (BTC).

Imperial Science and Bureaucratic Capital: Laying Down the Foundations

The GOI was at the same time keen on assessing the ways in which various countries in the world 'developed' their rivers and their "water resources", apart from the means of mitigating the effects of flood and erosion. It constituted a 'Study Group' to investigate the problem of erosion on the Brahmaputra in 1964. "In its report submitted in 1965, the study group dealt with the nature and extent of the erosion problem, its cause, and measures adopted in other countries." It was not only the state-scientists and experts affiliated to the central government and its agencies that were involved in the enquiry of the question of "dealing with the problem". A series of experts from U.S.A. and Europe visited Asom and studied the region's river system, and came up with recommendations in the decades following the floods of 1954.

B. P. Bellport, the Chief Engineer of the U.S. Bureau of Reclamation and Dr. Ian Barton of the U.S. Army Corps of Engineers visited the region separately in 1965. Bellport recommended in his report that reconnaissance studies needed to be carried out to determine the magnitude of the 'problem' of floods, as well as to

[66] ibid.

understand not only the hydrological but also the economic features of the Brahmaputra basin. In his opinion, "The survey should include not only the survey of water resources, but also an effort to determine the feasibility of constructing dams on the tributary streams."[67]

Though Dr. Ian Barton recommended construction of big dams in the region, he was of the opinion that it could not be 'justified' only for the purpose of flood control. Rather, this has to be an ancillary benefit, whereas generation of electricity had to be one of the primary aims. He suggested that the "Problem of earthquake and large silt charge in the rivers will have to be taken into account in the design of multipurpose schemes. This silt load in the rivers can be reduced by taking up proper watershed management." In 1966, after a year of Barton's visit, another expert from the U.S. Army Corps of Engineers H. E. Weller made a detailed study of the Brahmaputra. Weller's report gave a glimpse of the things to come.

> In his report he suggested that the most desirable plan for controlling of Brahmaputra River is complete stabilization. To accomplish this, sufficient reservoirs to reduce input of sediment and halt of aggrading tendency of the river, should be constructed. The river could then be confined into a single channel trained into a series easy bends, preferably along the main channel by all methods of channel stabilization. It requires a vast outlay of money, tremendous amount of manpower, equipments and materials. Further, the limited number of reservoir sites may not provide a sufficient reduction of sediment load. Confinement of the river in a single channel might well raise flood heights which will require higher embankments. Such complete stabilization is not feasible at present, and, therefore, work in specified locations will have to be considered. He also observed that dredging judiciously applied can, in many cases, divert the river away from the problem area. A careful study of river trend is, however, necessary for this type of work, he opined.[68]

[67] ibid.
[68] ibid.

In 1963, the National Hydraulic Laboratory (N.H.L.), Chatou of France was roped in by the GOI to study the feasibility and means for the improvement of the navigability and protection of the Brahmaputra's river banks. This study was conducted in collaboration with the United Nations Economics Commission for Asia and Far East under the guidance of Maurice Remillieux, the Chief Engineer of NHL. Experiments with five trials were taken up from 1963 to 1970 for improving the navigability of the Brahmaputra and for its bank protection. The experiments were found to be successful in three places while they failed in two places. With these results, it was held to be impossible to go further with the 'river-training' project for the Brahmaputra without a suitable and systematic long-term programme to study the evolution of its 'channel-processes'.[69]

The same set of questions was also studied by W. A. Stufft of the United States Aid for International Development (USAID) in 1970. His recommendation to the GOI was that the Brahmaputra Flood Control Commission (BFCC) was to be entrusted with the task of preparing a "framework plan" primarily for mitigating floods and bank erosion as well as for improvement of the drainage in the valley. He suggested that "The function of irrigation, power, navigation, soil conservation, water supply, fisheries should also be considered where they are directly related to the primary purpose." For preparing this plan, not only the services of engineers specialized in hydrology and sedimentation needed to be mobilised, according to Stufft, but also that of an economist who would undertake a thorough cost-benefit analysis of the planned projects. Stufft laid out the following tasks in order to control the river system of Brahmaputra:

> Immediate: To complete construction of embankments and construction of bank protection at some selected localities where town or other important structures are threatened. Short term: To prepare a framework for flood control to determine if a system of reservoirs will be feasible. Long term: To make detailed investigation aimed towards multipurpose developments of the basin through construction of reservoirs at suitable sites. In addition, they suggested that the

[69] ibid.

existing section of embankments should be improved and the standard adopted for Mississippi river embankments should be followed.[70]

For the experts and the state-scientists, the natural structure of the river Brahmaputra was inherently faulty. "As *the slope in its valley in Assam is much steeper than required for a poised river of its size*, the Brahmaputra, burdened with heavy silt load, flows listlessly through the valley attacking its banks as if it has been provoked. This has been the mood of the river since ages and during this period it has eaten away so much fertile land in the valley that now it has a bed width of 6 to 19 km to wriggle in. Swollen during the Monsoon period, it spills its banks flooding vast areas and obstructing drainage." However, such a source of agony could be turned into its opposite: as a source of benefit. As the *Master Plan* notes, "Yet with a propensity to inflict enormous damage it has the capacity to bestow large benefits in the shape of hydropower, navigation and irrigation. These have to be secured in a plausible manner."[71] Floods and erosion caused enormous financial loss, both from its direct and indirect effects, the document argued. "the loss damage statistics are being collected in the country since 1954… there is considerable indirect loss due to disruption of rail and road communication, lower crop production and extra expenditure on relief and rehabilitation, etc. if indirect loss is taken into account, the amount of annual loss in the Brahmaputra basin due to flood and drainage congestion is enormous."[72]

There were also reports of the interest shown by the U.S. government and various organisations of that country to study and recommend 'solutions' for the development of 'water resources' in South Asia. It was noted that in the decade preceding 1978 Harvard University's Centre for Population Studies had been investigating the Ganga and Brahmaputra Rivers with the aid of funds provided by the World Bank and the Ford Foundation, and in their research paper presented an "idea for a revolutionary technical fix that might provide water for

[70] ibid.
[71] ibid.
[72] ibid.

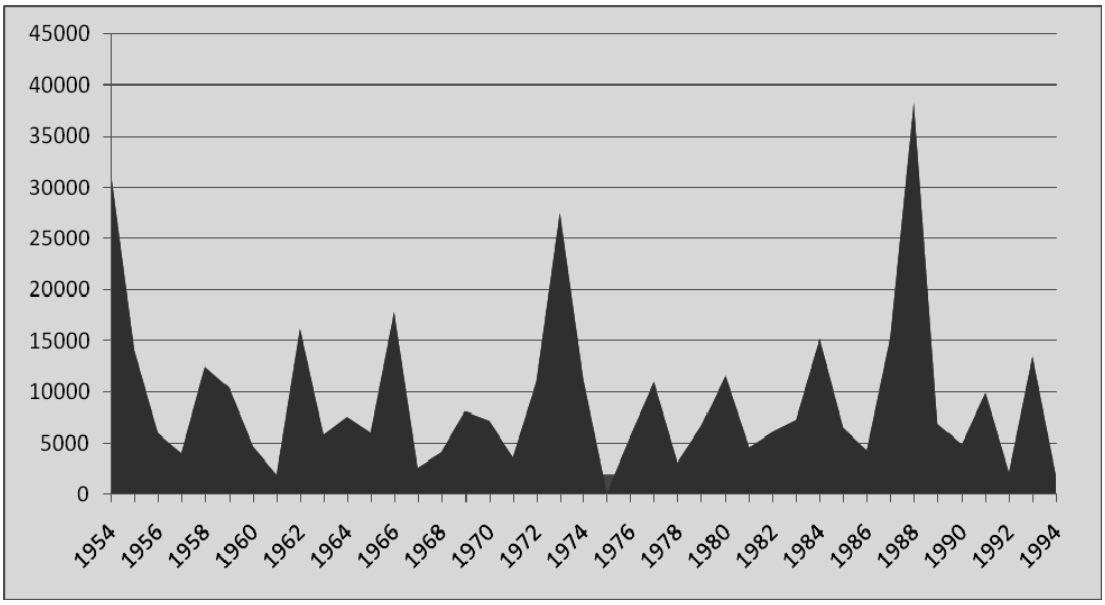
all seasons and all uses, and might also mitigate floods."[73] U.S. President Jimmy Carter and British Prime minister Callaghan in their visits to India in late 1970 also offered 'international assistance' to projects for 'harnessing' the two major rivers of South Asia. A pertinent question raised at that time about this external intervention still remains equally relevant and at the same time unaddressed,

> all in all, the portents of the Ganga and Brahmaputra are not good, but is there and alternative? The answer to the question is: probably control of the Brahmaputra and the Ganga is not simply a technical problem. Nor is it a problem that can be solved by engineers from America and Britain (though they could help). The use and control of the rivers is intimately related to the agrarian relations of the area and the historical development of the area. And alternative plan would need basin-wide co-ordination and technical support, but more than that it would need popular support and understanding. Millions of small projects carried out primarily by manual labour could, as various Chinese examples have shown, mitigate floods, conserve soil, conserve water for year-round use and divert it for irrigation. But the minimum pre-condition for the project would be genuine land reform.[74]

The following diagram based on the data provided by Hofer and Messerli visually represents the occurrence of floods in the Brahmaputra Valley in Asom in the four decades between 1954 and 1994, and the area inundated by these floods. As it demonstrates, floods of the Brahmaputra and its tributaries have annually inundated thousands of square kilometers of area every year, but only occasionally did its impact more than a third of Asom's geographical area, or 25,000 square kilometers. Within this period, only in 1988-89 did the floods affect close to half of Asom, in which a series of floods in close succession resulted in exceptionally high rates of damage.

[73] 'Harnessing Ganga and Brahmaputra: Implications of Anglo-American Move', *Economic and Political Weekly*, Vol.13, No.4/5 (January 28 – February 4 1978), pp. 129-130.
[74] ibid., p.130.

Area affected by Floods in Asom, 1954-1994 (in km²)



Source: Hofer and Messerli, *Floods in Bangladesh*[75]

The Taming of the Brahmaputra

It was this path the central government was to follow, implemented through the Brahmaputra Board in the coming decades. The terms of reference for the Brahmaputra Board included the preparation of

> a Master Plan for the control of floods and bank erosion and improvement of drainage in the Brahmaputra and Barak valleys. In preparing the Master Plan the Board was required to pay due attention to the harnessing of the water resources of these rivers for hydropower, irrigation, navigation, etc. Accordingly an integrated basin development approach has been adopted in preparing the Master Plan.[76]

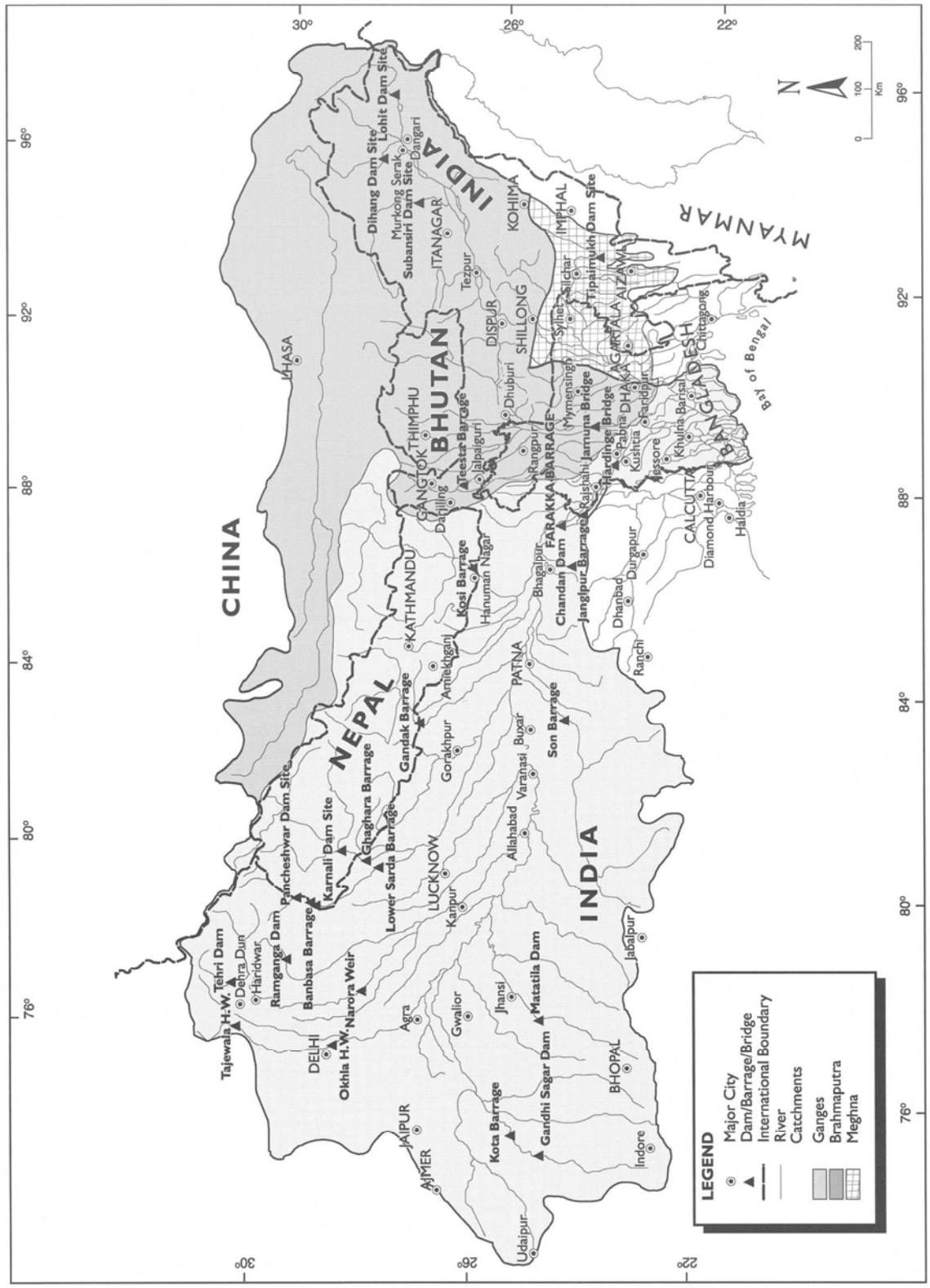
Under the aegis of the Brahmaputra Board, the government discourse shifted to the "control, regulation and development" of the Brahmaputra Valley through

[75] Thomas Hofer and Bruno Messerli, *Floods in Bangladesh: History, Dynamics and Rethinking the Role of the Himalayas*, Tokyo: United Nations University, 2006, p.80.
[76] *Master Plan of Brahmaputra Basin, Part I, Main Stem*, Brahmaputra Board, Government of India, Ministry of Water Resources, 1986, p.1.

the direct involvement of the central government. The Board itself became functional from December 1981, with the mandate and "responsibility of preparing a Master Plan for the control of floods and bank erosion and improvement of drainage in the Brahmaputra and Barak valleys." For this, the Board would prepare Master Plan for the "development and utilization of the water resources of the Brahmaputra and Barak for irrigation, hydro-power, navigation and other beneficial purposes." The Board was entrusted with the task of making detailed project reports and estimates for dams and other works under the Master Plan as well as "to construct, maintain, and operate such of them as may be approved by the central government." The construction of large storage reservoirs on some of the major tributaries of the Brahmaputra was considered as "the key to the solution of the problems of the Brahmaputra". As such, projects of multipurpose dams were made "integral part of the Master Plan".[77]

For almost five years after its constitution, the Brahmaputra Board collected scientific data by itself and also analysed those which were collected by various institutions and government departments. In order to formulate the Master Plan and to "secure comprehensive data for the future", it conducted investigations, field surveys, and observations where it was felt that there was inadequate information As the preparation of a comprehensive work plan for a massive river system like that of the Brahmaputra was considered to be a monumental task, the Plan had to be carried out in parts. Accordingly, "The first priority has been accorded to the main stem of the river. Individual plans are to be prepared for each tributary or group of tributaries." In this exercise, a number of specialist organisations such as the CWC, Central Electricity Authority, Geological Survey of India, Indian Meteorological Department, Survey of India, Central Water and Power Research Station, Central Soil and Minerals Research Station, College of Earthquake Engineering, Remote Sensing Agency, and even the Indian Institute

[77]ibid.



Mega Dams in Ganga-Brahmaputra-Meghna Basin

(*Source*: Stephen Brichiery-Colombi and Robert W. Bradnock, 'Geopolitics, Water and Development in South Asia: Cooperative Development in the Ganges-Brahmaputra Delta', *The Geographical Journal,* Vol.169, No.1, [March 2003], p.45)

of Management, Bangalore were mobilised. The Plan for the "main stem" of the river system, i.e., the Brahmaputra was completed in 1986, while the project reports for two major multipurpose dams: the Dihang Dam Project and the Subansiri Dam Project were completed by the Board, investigations of which were in progress for the past several years, were submitted to the GOI.[78]

In spite of the admission that there was a lack of adequate scientific knowledge to decide on the feasibility and desirability of multipurpose dams in the region, which the way forward was nevertheless considered to be their construction for the long term solution of the 'problem', while substantial success was claimed of the works of flood protection and anti-erosion measures carried out till 1980s. As the Master Plan prepared in 1986 by the Board claimed,

> The difficult terrain of the Brahmaputra basin and insufficient hydrological, hydrometeorological and geological data made investigations of multipurpose reservoirs both difficult and time consuming. Nevertheless it cannot be denied that the flood control measures implemented so far have afforded reasonable protection to an area of 13.27 lakh hectares out of a total flood prone area of 19 lakh hectares. But for the protection works, which was taken up in 1954, Dibrugarh town would have ceased to exist… It may be concluded that considerable progress has been made during the last thirty years in the implementation of flood control measures, keeping in view the recommendation of the various committees and experts.[79]

During this period, the rivers were increasingly demonized in the official rhetoric put forward by the state in an attempt to establish the building of big dams as the only solution to the 'problem rivers' of the region, accompanied by promises of development and prosperity for the people. The following table shows the rivers identified for 'development' in the 'North East' through building of dams, their estimated storage and installed capacity for hydropower generation.

[78] ibid., pp. 47-49
[79] ibid., p.60.

Storage and installed capacity for proposed Reservoirs in the Brahmaputra and Barak Basins[80]

Basin/sub-basin	Live-storage (bcm)	Installed capacity (MW)
By 2010		
Subansiri at Gerukamukh	0.64	600
Tipaimukh	9.00	1,500
Bairabi	1.78	75
Jadukata	0.72	450
Siang (lower)	0.80	2,000
Noa-Dihing	0.13	75
Kulsi	0.69	36
Someswari	0.09	130
Um-N-got	0.03	710
Total	13.88	5,579
By 2020		
Subansiri (upstream reservoirs)	6.02	6,700
Lohit	2.75	3,000
Kameng	1.07	1,100
Kulsi	0.69	36
Total	10.53	10,800
By 2030		10,700
Siang (Yingkiong)	5.30	
Siyom (Kaying)	0.50	700
Debang	2.00	1,000
Total	7.80	12,400

The question over building of dams have also created contradictions between the rulers in Delhi and their surrogates in the region, for example in Arunachal Pradesh, as well as between the regional ruling props in Arunachal Pradesh and Asom. The object of such contradictions were of course no the interest of the people who were going to be affected by the state policies and projects, but over the sharing of the windfall gains accruing from the construction of these dams. The regional ruling elite in Arunachal Pradesh frustrated the central

[80] A. D. Mohile, 'Brahmaputra: Issues in Development', in Asit K. Biswas and Juha I. Utto, eds. *Sustainable Development of the Ganges-Brahmaputra-Meghna Basins*, New York: United Nations University Press, 2001, p.68.

government's efforts to go ahead with the dams for a few years in late claiming that the province was denied its due share of the revenue. This internal contradiction in the late 1990s and early 2000s however have given way to a subsequent understanding between both sections of the ruling class, with the result that not only the outstanding projects were cleared for implementations, but agreements for a great number of new projects were also entered into by the regional ruling class with state-run and private corporations. In the period between 2006 and 2009 the Arunachal Pradesh government signed 103 Memoranda of Understanding with government as well as private organisations for projects related to "water resource development".[81]

The most powerful resistance to the building of mega dams, however, has come in the last decade from the people of the region, and is today growing in strength as more and more are becoming conscious of the dire consequences of these structures for their life, livelihood and existence. The claims of the state that the dams could provide lasting solution to the problems of the region have been questioned and challenged, as is their reasonableness and viability from a scientific and technological point of view. It has been argued that the knowledge of the river system and its connection to the ecology of the region is not adequate, so much so that there is hardly any means of predicting the long term natural effects of this endeavour.

[81] 'Assam House Panel to Study Impact of Arunachal Dams', *Indian Express*, July 27, 2009.

CONCLUSION

> *All hitherto existing modes of production have aimed merely at achieving the most immediately and directly useful effect of labour. The further consequences, which only appear later and become effective through gradual repetition and accumulation, were totally neglected… by long and often cruel experience and by collecting and analysing historical material, we are gradually learning to get a clear view of the indirect, more remote social effects of our production activity, and so are affected an opportunity to control and regulate these effects as well.* This regulation, however, require something more than mere knowledge. *It requires a complete revolution in our hitherto existing mode of production, and simultaneously a revolution in our whole contemporary social order.*
>
> - Frederick Engels, *Dialectics of Nature*

Much of what Engels said in his *Dialectics of Nature* holds true even today, probably with far more force and relevance than in late nineteenth century when he wrote it. The world remains witness to the expropriation of human labour and of nature in an unprecedented scale by the anarchic and uncontrollable advancement of the world capitalist system and of the imperialist world order leading to the destruction of both people and their lived environment. The struggle for building a new, rational and just society based on non-exploitative social and production relations among people and between society and nature – where society is one with nature and not outside of or opposed to it– today becomes as pertinent as ever. This is the enduring insight of Marxism clearly delineated by Engels more than a century ago, an insight and a guide to action far

removed from what could be conjured up by the 'conservationists' of the day, or even by today's Environmentalists.

The insatiable demands of the colonial economy advanced under the banner of the colonial state was primarily responsible for intensifying and strengthening the exploitative aspects of the human-nature relationship in the colonial world, while the non-exploitative aspects were deliberately weakened and discouraged. Colonialism has passed on its baton to imperialism for world domination, and under its yoke, the people and their livelihood, the natural world, all are under threat. For the re-envisioning of a non-exploitative society-nature dialectic, there is a need to strive for a social transformation that will lay the foundations for a more democratic and just society. All Marxists hold that this can be achieved only through revolution. Therefore, the struggle for defending the rivers, forests, mountains, grasslands from plunder and destruction is intrinsically connected to the completion of the revolutionary social transformation.

While considering the society-nature relationship, we often tend to present the society homogeneously – as the undifferentiated society of human beings. But societies are class-divided, and as it have been pointed out in the thesis, not all classes of the society have identical relations with nature. As demonstrated by historical experience, societies dominated and ruled by exploitative classes are by far responsible for establishing antagonistic relations with nature. For instance, capitalism in its short life of a few centuries alone has perhaps done more damage to the earth than all the social systems in history put together. The question therefore is also of political power. As long as political power – represented most vividly by the control over the state – is in the hands of exploiting classes, there cannot be any 'ecological' or 'environmental' justice.

In the present work, we have made an attempt to present the story of society's relation with the Brahmaputra River in the nineteenth and twentieth centuries, roughly covering the entire colonial period, and the developments that followed the Britain's transfer of power to the Indian ruling classes in 1947. We have tried to distinguish between the state's perspectives and practices associated with the

rivers from that of the people, though it is admitted that the state's relations with the river has been more thoroughly examined in comparison to that of the people. This disproportionate focus on the state is a limitation of this work, to an extent forced upon by the constraints of the colonial archive. A more satisfactory, fruitful and incisive history of the river would require a far deeper exploration and understanding of the working people's relation with the rivers, their ways of life. This is because the 'question of nature', in the final analysis, is a class question. It is only the working people – proletariat and the peasantry – who have the ability and the need to establish a non-exploitative relation with nature.

What we witness uninterruptedly in the present epoch is a series of people's struggles breaking out in the entire subcontinent, against the status-quo of domination, subjugation and exploitation. While many such struggles are waged against the state and its constituents which are trying to dispossess the people from their means of livelihood, there are also struggles which aim not only to defend what is, but also to build what ought to be –a new society in place of the old. For many of the recent struggles, Marxism is the ideology and the guide to action. For them, Marxism is a tool to analyse the present in order to create the future as conscious and political agents of change. It is the coming together of thought and action for social change defined in terms of class struggle –a change that can only be materialised through conscious and collective human action. Marxism thus presents itself as the theory of revolution, and a guide to revolutionary practice. It is only to be expected the academic world in general and history as a discipline in particular has also been a crucial arena of this struggle –an ideological struggle– the status and intensity of which is inexorably linked with the level of development of the overall class struggle in the society.

As for the Brahmaputra, the ongoing popular assertion against the state's designs to 'develop' it for the market through the construction of a series of large dams is a sign of hope. Such struggles are a continuation of the anti-colonial struggles of the past generations of people in the region. It is a part of the still-incomplete decolonisation struggle of the Third World, and gives expression to the aspiration for self-determination of various nationalities in this land of Seven-

Sisters. Finally, it is also connected to the ongoing revolutionary movement, which is at the forefront of the anti-feudal and anti-imperial struggles in the subcontinent, fighting against the plunder of people and their resources – be it forests, mountains, rivers, minerals, i.e., Nature – for corporate profit, and to establish a new society. It is only befitting that the adivasi people of the subcontinent who have the most intimate relations with nature, are playing a crucial role in the Indian Revolution. It is the necessity for a complete revolution in our existing mode of production, and simultaneously a revolution in our whole contemporary social order, that underlies a revolutionary movement. This necessity today is most strongly felt by the oppressed exploited classes, they be the workers or the peasants, the marginalised adivasis or the landless dalits. Freedom, it is rightly said, is the transformation of necessity.

Appendix I: *Statement showing district-wise list of rivers in the Brahmaputra Valley proposed for reservation as fish-sanctuaries in February 1914**

Name of District	Name of River	Boundaries of the proposed Reserves	Any Existing Rights
Goalpara	(1) Sankosh (2) Jakati (3) Pekua (4) Hel (5) Saralbhanga (6) Polo (7) Bhur (8) Dholapani (9) Aie (10) Champamati (11) Kanamakra (12) Monas, together with the various double channels, tributaries etc., and also a number of small bhils, etc., mainly in Guma mauza.	The Dy. Comm. reports that these rivers lie within the following boundaries: North – The Bhutan boundary. South – Pargana's boundary. East and West – The boundary of the district	There is no long-standing right in respect of the fisheries except that the Bijni Raj at present exercises the right of settling the reaches of the fisheries of the Manas and Aie rivers in the Bijni Dooar. The Dy. Comm. reports that it is essential that the right of fishing in these two fisheries should specifically be reserved when the new settlement of the Dooar is effected with the Bijni estate. The other rivers have been settled for three years, i.e., 1912-13 to 1914-15.
Kamrup	The reaches of the Manas, north of the railroad	North of the railroad	
Darrang	(1) Barnadi	From the Inner Line to a point opposite the northern extremity of the Attarikhat garden.	No long-standing rights reported by the Dy. Comm., Darrang.
	(2) Dhansiri	From the Inner Line to the point where it crosses the Orang-Rowta road	Ditto
	(3) Panchnoi	From the Inner Line to the point where it crosses the North trunk road at Orang	Ditto
	(4) Belsiri	From the Inner Line	Ditto

		to the point where it crosses the southern boundary of the forest reserve	
	(5) Gabru and Sonarupa	From the Inner Line to the point where these two rivers join	Ditto
	(6) Bhoreli	From the Inner Line to Colderghat	Ditto
	(7) Borgang	From the Inner Line to the point where it crosses the Borgang-Kalapani road	Ditto
	(8) Boroi	From the Inner Line to the its junction with the Bihmari River	Ditto
	The Dy. Comm. recommends that all fishing except with rod and line should be prohibited on the above rivers for a distance of 8 or 10 miles down from the point where they enter our territory. The prohibition should include all the tributaries falling into them within their reaches.		
Nowgong	(1) River Kapili	From Dayangmukh to Jamunamukh	These are leased fisheries, the terms of which will expire on 31 March 1915. Apart from these leases there are no long-standing rights exercised by Nadiyals or other fishermen.
	(2) Borpani or Barpanigarden ghat	From where the river enters the Nowgong district in the Khasi Hills boundary to Singimari	

	(3) Dijoo	Boundary is not specified	No lease and rights
	(4) Killing	From where the river enters the Nowgong district in the Khasi Hills to its confluence with the Kapili	Ditto
Sibsagar	(1) Kaliani	The rivers enters the Dhansiri near Kamargaon, and its lower waters would serve as a sanctuary for fish from the Dhansiri	Ditto
Lakhimpur	(1) The upper Ranganadi	From Dijoo ghat upwards	No long-standing rights reported by Dy. Comm., Lakhimpur
	(2) The upper Dehing		Ditto
	(3) The Subansiri	Above Kathalguri	Ditto
	(4) The Buri-dehing	Above the confluence with the Tarap	Ditto
	(5) Dibru	Boundary is not specified	No rights except that it has been leased for the present

* Source: Col. P. R. T. Gurdon, Commissioner of the Assam Valley Districts, to the Under Secretary to the Commissioner of Assam, Revenue Department, No.55C, 14 February 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA.

Appendix II: *Statement Showing the Names of the Rivers Reserved in Assam Valley Division as Fish-Sanctuaries, November 1914**

Name of District	Name of the River	Remarks
Goalpara	1. Sankosh 2.Jakati 3. Pekua 4. Hel 5. Saralbhanga 6. Polo 7. Bhur 8. Dholapani 9. Aie 10. Champamati 11. Kanamakri 12. Manas together with various double-channels, tributaries, etc., also a number of small bhils, etc., mainly in Guma mauza, viz. – (1) Gadadhar (No.1) (2) Haruputa (3) Burar Cherra (4) Kamandonga *bil* (5) Bamni nadi (6) Maskinir Char (7) Parua Cherra (8) Gadadhar (No.2)	These are not registered or settled fisheries
Kamrup	1.The upper riches of Saru Manas 2. The reaches of the Kulsi river 3. Digaru	These are not registered fisheries
Darrang	1. Bornadi 2. Dhansiri 3. Panchnoi 4. Belsiri 5. Gabru and Sonarupa 6. Mora Bhorelli 7. Jia Bhorelli 8. Boroi 9. Borgong	No lease

Nowgong	1. Kapili 2. Borpani 3. Dijon 4. Killing	} No lease
Sibsagar	1. Kaliani	
Lakhimpur	1. The upper Ranganadi from Dijooghat upwards 2. The upper Dihing 3. The Buri Dihing river above its confluence with Tirap	

* Source: B. C. Allen, Chief Secretary to the Chief Commissioner of Assam to the Commissioner, Assam Valley Districts, No.4550R, Shillong 13 November 1914, Assam Secretariat Proceedings, Revenue Miscellaneous-A, February 1915, ASA.

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